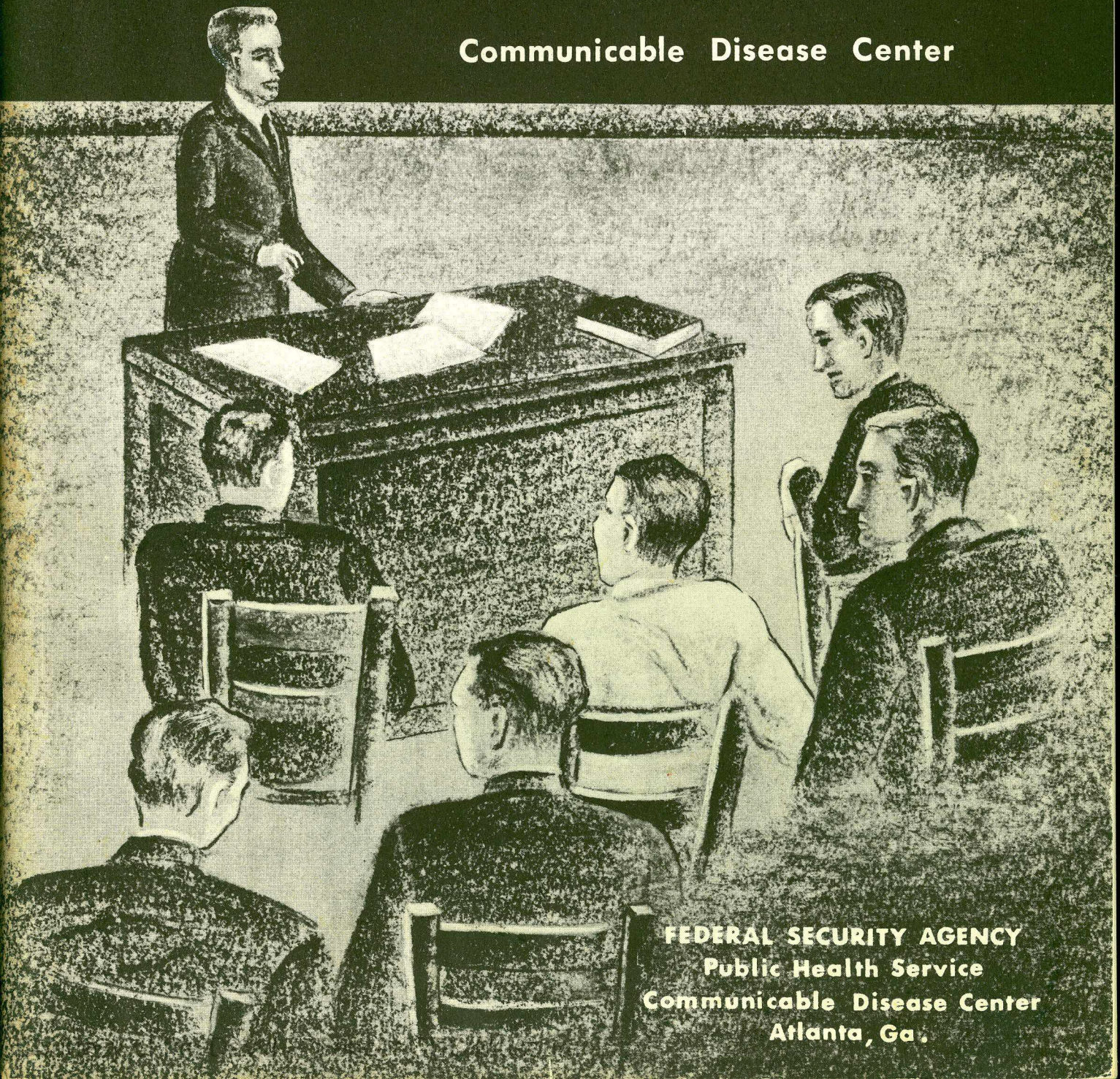
CDC BULLETIN

Jan. Feb. Mar. 1949

IN THIS ISSUE: Field Training Activities of the Communicable Disease Center



FEDERAL SECURITY AGENCY
Public Health Service
Communicable Disease Center
Atlanta, Ga.

CDC BULLETIN

January - February - March 1949

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PUBLIC HEALTH SERVICE
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CDC TRAINING COURSES

Listed below are training courses, sponsored by divisions of the Communicable Disease Center, to be held in the near future. Dates are listed with each course. Further information on the courses may be obtained from the *Bulletin of Field Training Programs*, issued by the Training Division.

LABORATORY DIVISION

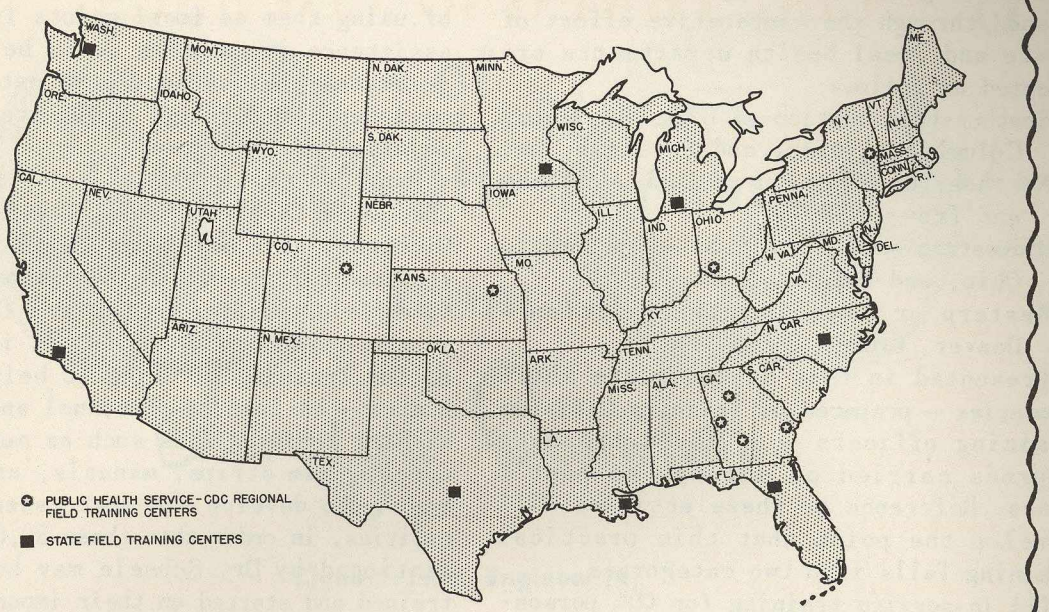
1. **SEROLOGICAL DIAGNOSIS OF RICKETTSIAL DISEASES**, February 21 to February 26, 1949. One week. Atlanta, Ga.
2. **LABORATORY DIAGNOSIS OF BACTERIAL DISEASES, TUBERCULOSIS BACTERIOLOGY**, February 28 to March 25, 1949. Four weeks. Atlanta, Ga.
3. **LABORATORY DIAGNOSIS OF PARASITIC DISEASES**, March 14 to April 22, 1949. Six weeks. Atlanta, Ga.
4. **LABORATORY DIAGNOSIS OF BACTERIAL DISEASES, GENERAL BACTERIOLOGY**, March 28 to April 22, 1949. Four weeks. Atlanta, Ga.
5. **LABORATORY DIAGNOSIS OF BACTERIAL DISEASES, ENTERIC BACTERIOLOGY**, April 25 to May 20, 1949. Four weeks. Atlanta, Ga.
6. **LABORATORY DIAGNOSIS OF BACTERIAL INFECTIONS AND RICKETTSIAL SEROLOGY.** (For Laboratory Directors). May 23 to June 3, 1949. Two weeks. Atlanta, Ga.
7. **LABORATORY DIAGNOSIS OF TUBERCULOSIS AND MYCOTIC DISEASES.** (For Laboratory Directors). June 6 to June 17, 1949. Two weeks. Atlanta, Ga.
8. **LABORATORY DIAGNOSIS OF PARASITIC DISEASES.** (For Laboratory Directors). June 20 to July 1, 1949. Two weeks. Atlanta, Ga.

VETERINARY PUBLIC HEALTH DIVISION

1. **LABORATORY DIAGNOSIS OF RABIES**, April 25 to April 29, 1949. One week. Atlanta, Ga.

TRAINING DIVISION

1. **FIELD SURVEY AND EVALUATION METHODS IN HOUSING SANITATION**, March 14 to April 15 and May 16 to June 17, 1949. Five weeks. Atlanta, Ga.
2. **RAT-BORNE DISEASE PREVENTION AND CONTROL**, March 14 to April 8, 1949. Four weeks. Atlanta, Ga.
3. **FLY CONTROL**, April 25 to April 29, 1949. One week. Atlanta, Ga.
4. **PRACTICAL HEALTH DEPARTMENT RECORDS TRAINING**, April 11 to April 23, 1949. Two weeks. Topeka, Kans.
5. **ORIENTATION COURSE FOR LABORATORY PERSONNEL IN THE EXAMINATION OF SEWAGE, POLLUTED WATERS, AND INDUSTRIAL WASTES**, April 11 to May 6, 1949. Four weeks. Cincinnati, Ohio.
6. **PUBLIC HEALTH EDUCATION FIELD TRAINING**, March 7 to May 28, 1949. Eight weeks. Savannah, Ga.



Field Training Activities of the Communicable Disease Center

Ellis S. Tisdale, Senior Sanitary Engineer

Surgeon General Leonard A. Scheele, M.D., in speaking to the Massachusetts Public Health Conference at Amherst in June 1948, commented upon the extent of personnel needs in the field of public health as follows:

"The Nation has approximately 30,000 professional personnel employed in public health work but not more than one-third of these have had the formal training required by minimum standards. Nation-wide we need 60,000 trained public health workers. To train 30,000 new recruits and 20,000 persons needing varying amounts of additional study — 50,000 in all — we have only ten schools of public health, all of which are hard pressed for the means to expand and some of which are hard pressed to hold their *status quo*. Field training centers are especially needed."

The Communicable Disease Center, with a background of successful achievements in training workers for the fields of malaria- and rodent-borne disease control, has established several regional field-training

centers during 1946, 1947, and 1948, in order to more effectively assist all the States with practical training (internship type) of public health personnel.

These regional training centers established through the cooperative effort of State and local health departments are located as follows:

Southeastern section of U. S. — Atlanta, Columbus, Albany, and Savannah, Ga.

Northeastern section of U. S. — Albany and Troy, N. Y.

Midwestern section of U. S. — Cincinnati, Ohio, and Topeka, Kans.

Western or Rocky Mountain section — Denver, Colo.

Presented in this Bulletin are short summaries — prepared by Training Division training officers — of field training courses carried on during the past 2 years. Reference to these articles will develop the point that this practical training falls into two categories.

(1) In-service training for CDC personnel; and insect and rodent control training for foreign visitors who have taken academic courses at the universities here in the United States, and who desire to participate in the application of these public health principles about which they have studied.

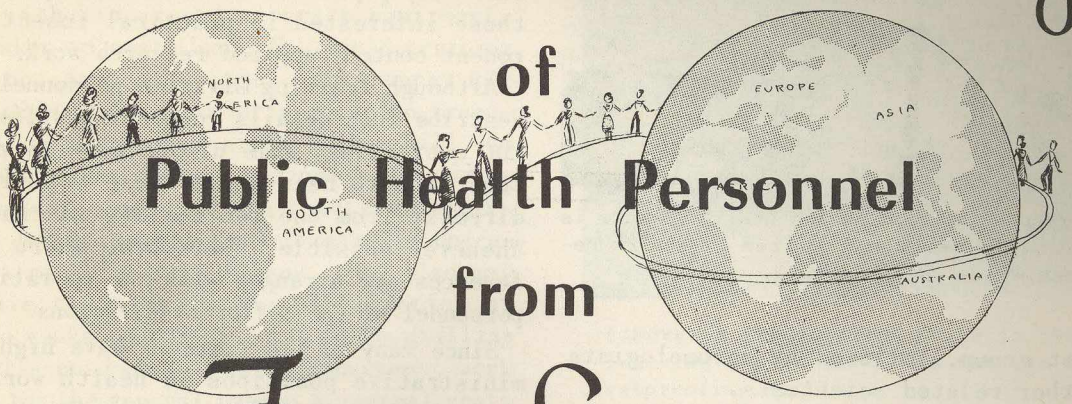
(2) Field training of both professional and nonprofessional personnel for nearly all types of workers employed by local, State, or Federal health authorities. These include health officers, sanitary engineers, sanitarians (professional grade), and health educators; and in the nonprofessional category, sanitary inspectors, sanitarians for milk and food sanitation control, rodent- and insect-borne disease control, and public health department records personnel.

The field training centers have been strategically located with the thought of using them as focal points from which assistance in training could be rendered to States that already have established, or intend to develop, field training facilities of their own.

Many States, including Florida, Louisiana, North Carolina, Texas, California, and Michigan, have developed, with financial assistance from certain foundations, effective field-training activities. Others are in the process of doing so. It is the aim of the Training Division to help all the States — by loan of personnel and by furnishing training aids such as motion pictures, film strips, manuals, and equipment — to develop the most essential facilities, in order that these 50,000 people mentioned by Dr. Scheele may be quickly trained and started on their important work of preventing disease through well-conceived and efficiently executed programs in local health departments.

In the following brief summaries, several of the training officers at headquarters of the Training Division in Atlanta and at regional training centers throughout the country have outlined the organization and conduct of the different types of field training. It cannot be too strongly emphasized that without the sympathetic and enthusiastic support of the directors of these local and State health departments where training activities are under way, no effective field training can be carried on by the Public Health Service.

Orientation and Field Training of Public Health Personnel from Foreign Countries



Clyde F. Fehn, Engineer (R)

Since January 1946, 221 public health workers from 50 foreign countries have come to the Training Division to learn about the activities of CDC and to receive field training experience in American public health procedures (figure 1). These visitors are usually under the sponsorship of an interested agency such as the World Health Organization, the Rockefeller Foundation, the Institute of Inter-American Affairs, or the Office of International Health Relations of the Public Health Service. Some visitors are sponsored entirely by their home governments. The original letter of inquiry from the sponsor gives the names of the person or persons who wish to visit the Center and indicates what they are interested in doing upon their arrival. The letters usually include a summary of the professional training and experience of the individuals concerned. A letter of reply is then written accepting them for such specified periods as prove to be satisfactory for all parties concerned.

When the visitors arrive in Atlanta, they are directed to the Training Division, which sponsors the orientation of foreign public health workers. The first concern of the Division is for the personal welfare of the newcomers. Although hotel or room reservations usually have been made in advance, it is necessary to assist trainees in getting installed in their quarters, in obtaining satisfactory meals, in arranging for travel, and in other personal matters.

The next step is to interview the visitor, recording information about educational background, previous positions, probable future position, and specific interests in coming to CDC. A written, detailed schedule is then prepared for each man listing among other items such things as discussions by training officers, field trips, films and filmstrips to be seen, books and pamphlets to be studied, periods to be spent in one of the laboratories, etc.

The largest proportion of foreign public health workers are health officers with degrees in medicine. Many of this group have received Master of Public Health degrees from United States universities. Sanitary engineers make up the second

This group of foreign public health workers is observing how wells are drilled by health department crews in Albany, Ga.

largest group, followed by entomologists and other related scientists.

The following table indicates the professional background of the group:

Profession	Approximate Percentage
Health Officers	57%
Sanitary and Public Health Engineers	21%
Entomologists	12%
Others	10%

Another breakdown indicates that about 12 percent of the visitors were chiefly interested in public health administration, about 24 percent were research workers, and about 64 percent were people assigned to operational public health programs.

ORIENTATION ACTIVITIES

As soon as possible after arrival — usually on the first day — the over-all activities of CDC with its nine divisions are explained and illustrated by audio-visual means. By that time, the visitors usually have rather definite ideas as to the different CDC activities about which they would like to have more detailed information. Since a large number of the visitors are malariologists, they desire to spend one or more days learning about the work of the Engineering, Entomology, and Epidemiology Divisions. Others are interested in the work of the Laboratory Division. Almost every foreign visitor is interested in seeing the Production Division with its array of equipment for making audio-visual aids. The Technical Development Division, situated in Savannah, is also very popular with visitors, especially those interested in practical insect and rodent control applied research work.

Although Training Division personnel can describe most details concerning different CDC activities, some of the foreign visitors like to hear about these activities directly from the men who are in charge. Whenever possible, therefore, short conferences are arranged with the operational personnel of the different divisions.

Since many of the visitors have high administrative positions in health work in their home countries, they are interested especially in details of available training facilities. If time permits, they are taken into the field to see actual training activities. Some visit the sanitary engineering field training station in Columbus, Ga., for this purpose. At the end of their visit, they often inquire as to the possibilities of sending their "bright young men" here for specific, detailed field training.

HOW TO DO TRAINING

The visitors are interested in learning details of "how to do training." To this end, they may spend several days with different training officers learning about such things as qualifications for training officers, suitable training areas, "learn by doing it" techniques, necessary facilities and equipment, etc.

INSECT AND RODENT CONTROL

Foreign public health visitors receive training in modern American practices for the control of insects and rodents of public health importance. In the past, courses have varied in length from 1 day to several weeks. The average visitor takes a 2- to 3-week course. They are interested in DDT residual spray programs because house spraying for malaria control is now being done throughout the world. The basic training in residual spraying is held in Atlanta, although training in advanced operation

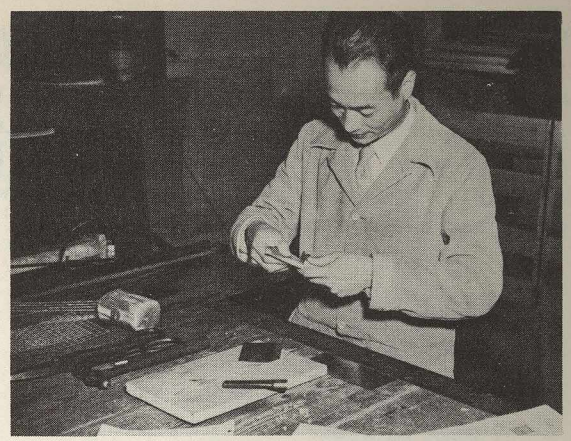
techniques may be acquired by working with one of the State operational programs.

Those persons who are interested in receiving advanced training in DDT larviciding both with ground and aircraft equipment, are taken to our Albany, Ga., field training station. At this station, they spray DDT larvicide on known malaria mosquito breeding places, and then check on the kill the next day. They observe and check the larviciding efficiency of the county-wide airplane larviciding control program in operation there. While in Albany, they also may receive training in the installation of septic tanks and privies and in the drilling of wells as done by health department work crews for the general public at actual cost; and they may visit the nearby malaria outpost station which is operated by CDC in cooperation with Emory University.

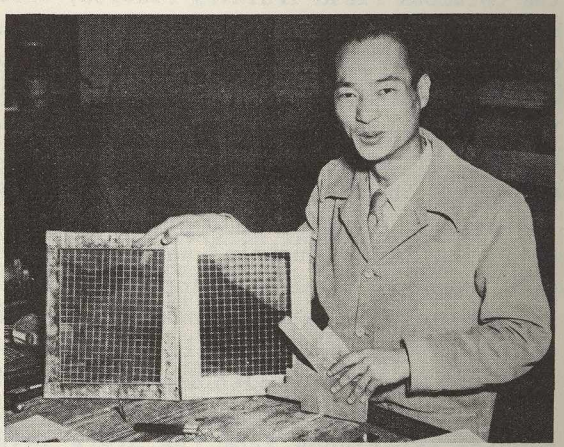
Many visitors take several days' training in the control of other insects of public health importance, especially flies, ticks, fleas, mites, and lice.

Trainees usually are interested in taking field training courses in the prevention and control of rat-borne diseases. Ample facilities are available in Atlanta for this training because of the close working agreements maintained with the Atlanta typhus control program. Under this program, the visitor may spend as many days as he desires in actually ratproofing downtown business buildings and freeing them of rats, in controlling rat populations of residential areas through sanitation techniques and poison applications, and in learning to safely and effectively use the highly effective war-developed rodenticide called "1080".

Since the greatest number of foreign visitors come to the Center during the summer months, special plans again have been made for their reception during the coming summer of 1949. To this end, five separate 2-week courses already are scheduled. The first week of each of these courses will be concerned with the control of insects of public health importance, major emphasis being placed on control of mosquitoes and flies. The second week of



(ABOVE) A trainee from China is shown learning how to fabricate screens for ratproofing buildings.
(BELOW) Finished ratproofing models.



Engineer from Venezuela installing a metal-framed, hardware-cloth screen on a business building in Atlanta, Ga.

each course will be on rat-borne disease control. The schedule is so designed that most visitors will be able to adjust their summer's program so that they may be in Atlanta when courses in which they are especially interested are in progress. The dates for these courses are as follows:

June 6 - June 17
June 20 - July 1
July 11 - July 22
July 25 - August 5
August 15 - August 26

FIELD TRAINING FOR SANITARY ENGINEERS

Sanitary engineers from foreign countries desiring field training are sent either to the Columbus Field Training Station, where a 12-week general sanitary field-training course is conducted each summer, or to the Cincinnati Field Training Station. Each year the latter offers several different courses in stream pollution abatement; stream and industrial waste survey methods; laboratory procedures in sewage, stream pollution, and industrial waste analysis; and laboratory procedures for water, milk, and food utensil examinations. Also, sanitary engineers occasionally are assigned to work with State health department sanitary engineering departments in order to acquire experience from the State level of administration.

OTHER FIELD TRAINING PROGRAMS

A few foreign public health workers have received training in public health education at the Savannah, Ga., field training station. It is probable that in the future visitors will desire training in housing sanitation, which has recently been inaugurated in cooperation with the American Public Health Association and the Atlanta City Health Department.

In all of our contacts with foreign public health workers we have endeavored to foster international good will. Having observed how public health workers from all over the world can get together and exchange ideas freely and completely, we can look ahead more confidently not only to a more healthful world, but also to a more peaceful world.

CONCLUSION

The Training Division has made every effort to provide practical field training for foreign public health workers. In turn, we have learned much from each of the visitors. As Americans, we like to think that we do everything better than anybody else in the world, but in the field of public health we have found that this supposition is entirely false. We find that foreign public health workers are doing many things much more forcefully and efficiently than United States workers are doing them.

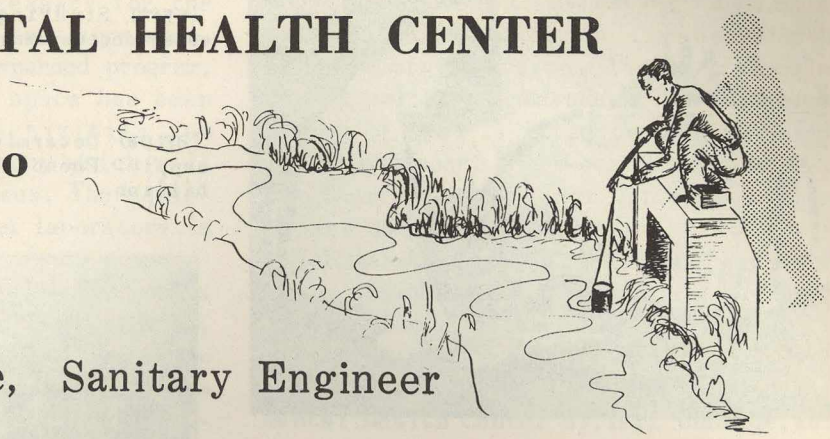
TABLE I

TRAINEES AND VISITORS FROM FOREIGN COUNTRIES

January 1946 — September 1948

Country	No. of Trainees	Country	No. of Trainees	Country	No. of Trainees	Country	No. of Trainees
Argentina	3	East Indies	1	Iraq	1	Puerto Rico	3
Australia	1	Ecuador	1	Italy	8	South Africa	2
Bolivia	4	Egypt	4	Jamaica (B.W.I.)	1	Spain	2
Brazil	15	El Salvador	1	Java	1	Sweden	3
British Guiana	1	England	1	Korea	3	Switzerland	3
Canada	3	France	2	Mexico	4	Syria	4
Ceylon	3	Greece	10	Norway	1	Trinidad	1
Chile	1	Guatemala	1	Pakistan	1	Turkey	1
China	46	Hawaii	1	Paraguay	1	Uruguay	1
Colombia	11	Holland	1	Peru	4	Venezuela	15
Costa Rico	1	India	20	Philippines	15	Yugoslavia	3
Denmark	1	Indo-China	1	Poland	3		
Dominican Republic	3	Iran	1	Portugal	2	**Total**	**221**

Training Plans Now Being Developed At The ENVIRONMENTAL HEALTH CENTER Cincinnati, Ohio

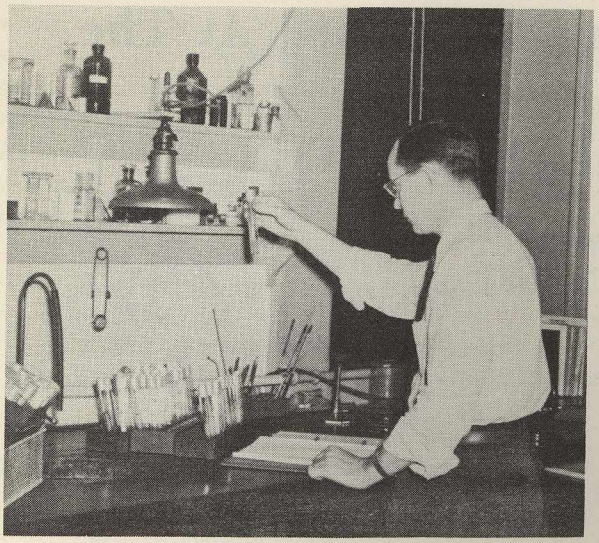


Ernest P. Dubuque, Sanitary Engineer

Since the Public Health Service started its first training programs in sanitation activities, it has sought to offer a well-rounded program of training by coordinating and expanding its training facilities to cover the entire field of sanitation. The Water and Sanitation Investigations Station at Cincinnati, Ohio, had long been considered an ideal place for the expansion of training activities because of its geographical location, its staff of technical personnel engaged in water and sanitation research and field studies, and its history of having conducted highly successful courses in the past. After a series of conferences over a period of 2 years, it was agreed that a more active training program would be undertaken at Cincinnati with the assistance of the Training Division of the Communicable Disease Center. A sanitary engineer was made available from the Training Division in December 1947, to assist in formulating plans and to get the training program under way.

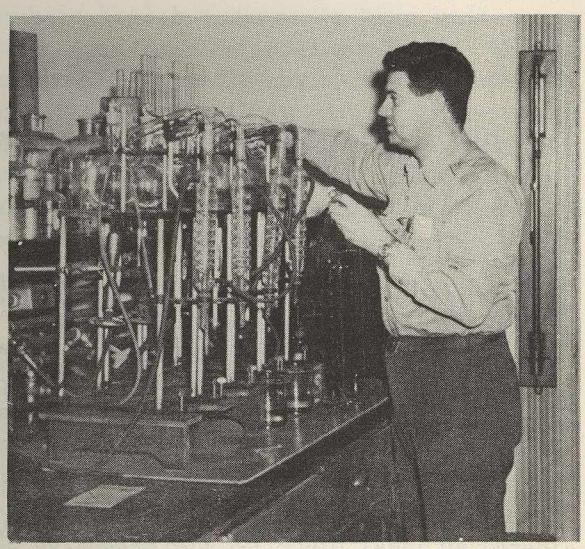
Two training courses were conducted at Cincinnati during 1948. The first, a Sanitary Engineering Training Course in Stream Sanitation, held March 15 through April 2, 1948, was attended by 19 engineers. Fifteen men took the entire course, while four who were unable to attend the entire course were in attendance for 1 week. The second, an Advanced Training Course for Bacteriologists in Charge of Milk Analyses for Food Utensil Examinations, held from April 19 through April 30, 1948, was attended by 17 bacteriologists from State laboratories. The attendance at these

Bacteriological work in connection with safety of drinking water supply.



(LEFT) Studying the ratio of coliform and enterococcus densities in stored water samples.

(BELOW) Determination of phenols in a water supply. Phenols are determined in parts per billion.



courses was necessarily restricted, and represented only a fraction of the candidates who were recommended by State health officers to take them.

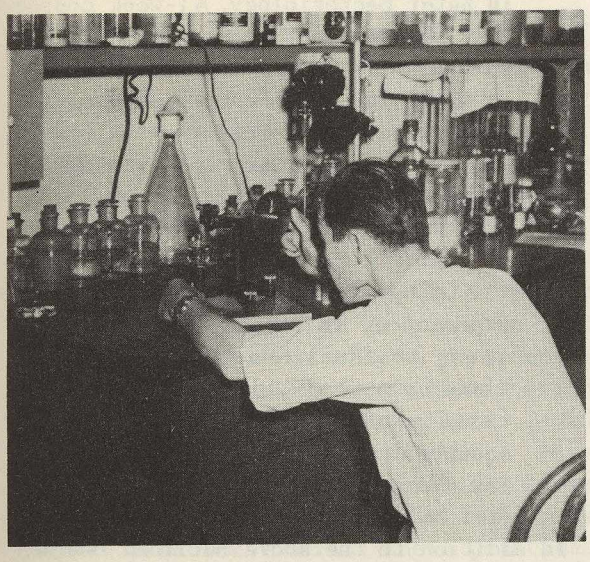
The lectures and laboratory demonstrations were conducted principally by the technical staff of the Water and Sanitation Investigations Station. A few lectures were given by consultants prominent in the field of stream sanitation. The courses were well received, but it was apparent even before the first course was given that the time required by the staff for preparation and presentation of lectures and laboratory demonstrations caused too great an interruption of the regular research programs. It was concluded that the best solution to this problem would be to secure a training staff of professional personnel qualified to present most of the technical lectures, and laboratory and field demonstrations. The advantage of having the training program at Cincinnati, headquarters for conducting research and field studies, was obvious in that the members of the Station staff could present the more technical phases of the training courses. It was also apparent that a special training laboratory should be provided so that training courses could be scheduled at any time without interfering with the regular research and investigations which might be in progress.

After carefully considering the results of the two courses given, the budget for the fiscal year 1949 was drawn up to include sufficient funds for necessary professional personnel and equipment for the training laboratory. Steps were taken at once to establish the following positions for the training staff: Sanitary Chemist, Bacteriologist, Aquatic Biologist, Sanitary Engineer, and Scientific Aide. Recruitment to fill these positions has been in progress for some time and a number of qualified candidates have been located.

Passage of the Water Pollution Control Act in June 1948, not only increased the need for a training program, but also greatly increased the responsibilities of the Water and Sanitation Investigations Station. Subsequent reorganization of the Public Health Service further increased

the scope of activities at the Cincinnati Station, establishing it as the Environmental Health Center. The increase in activities has made it necessary for the Environmental Health Center to secure additional space to house its expanded program. In the new quarters ample space has been allocated for training activities, to include a training laboratory which will accommodate 16 to 18 trainees. The equipping of the lecture room and laboratory is now in progress.

As the Environmental Health Center is engaged in both research and field studies, it affords an excellent opportunity to develop several types of training courses around its activities. Courses for laboratory personnel will consist primarily of training in laboratory techniques and interpretation of laboratory results, with limited field training for the present.



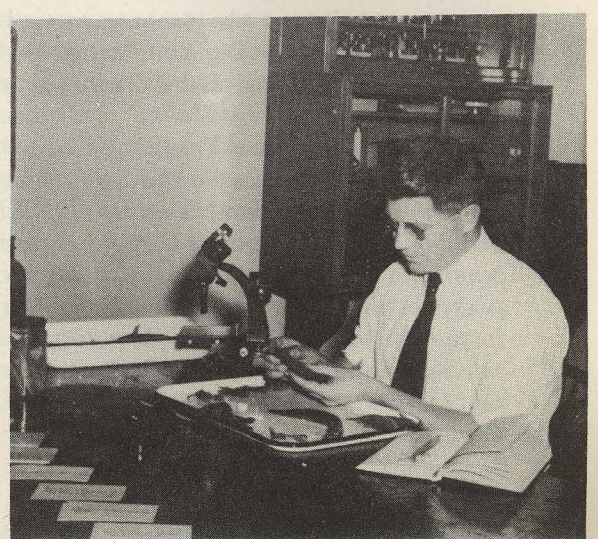
(ABOVE) Determination of surface tension in detergent study.

(RIGHT) Sorting and classifying fish in connection with stream pollution study.

It is hoped that in the near future, training for mobile laboratory personnel will be conducted in the field. Training courses for engineers will include both laboratory and field training, as well as lectures on program organization, legal aspects of stream-pollution abatement, and interpretation of data as it applies to the field of the engineer. The research activities of the Environmental Health Center lend themselves admirably to training courses in which laboratory personnel and engineers may be trained in both standard and recently developed methods and variations.

It should be pointed out that the planning of training activities at the Environmental Health Center differs considerably from the planning of training activities in a local health department. The work of the Center is done on a cooperative basis with the States and not as a local governmental function.

In planning field training it is an advantage to have routine activities in a relatively compact area, over which the sponsoring agency has direct control. On the laboratory phases of training, however, it is a distinct advantage to have men available at the Center who have devoted many years to research and have been responsible for developing many of the standard laboratory procedures.



Making films for direct microscopic count in milk work.

Training plans being developed at the Environmental Health Center at the present time are as follows:

(1) Advanced Sanitary Engineering Training in Stream-Pollution Abatement Programs. A 3-week course for experienced engineers which furnishes training in organizing and operating stream pollution and industrial-waste surveys and programs.

(2) Orientation Course for Sanitary Engineers in Stream and Industrial-Waste Survey Methods. A 12-week program for inexperienced engineers, which furnishes training in the techniques and methods of conducting and operating stream pollution and industrial-waste surveys.

(3) Advanced Laboratory-Training Course in Sewage, Stream Pollution, and Industrial-Waste Analysis. A 3-week course for experienced laboratory personnel which furnishes training in analysis and interpretation of results in the fields of water supply, sewage, stream sanitation, and industrial wastes.

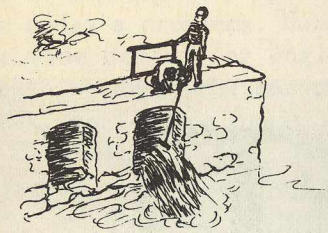
(4) Orientation Course for Laboratory Personnel in the Examination of Sewage, Polluted Waters, and Industrial Wastes. A 3-week training course for chemists, bacteriologists, or biologists who have had little or no experience in sanitary chemistry and sanitary bacteriology, to provide intensive training in the techniques in the standard and recently developed methods of making chemical, bacteriological, and biological examinations of samples encountered in stream-pollution and industrial-waste surveys.

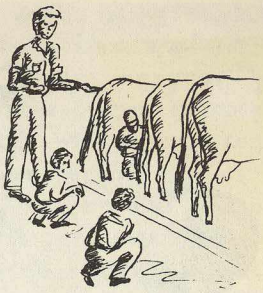
(5) Advanced Training Course for Bacteriologists in Charge of Laboratories for Water and Milk Analyses and Food-Utensil Examinations. A 3-week course for bacteriologists with a wide background in sanitary bacteriology, to provide advanced training in the theory, laboratory techniques, and interpretation of results obtained in the field of bacteriology.

(6) Advanced Laboratory Training Course in Water Bacteriology. A1-week course for experienced bacteriologists, to provide advanced training in the theory, laboratory techniques, and interpretation of results obtained in the field of sanitary bacteriology as it pertains to water.

(7) Orientation Course in Stream-Survey Methods. A 2- or 3-week intensive training course for engineers inexperienced in stream-survey techniques, to familiarize them with the theory, methods, interpretation of results of stream surveys, and the equipment used in sampling and testing. Most of the work in this course will be done in the field.

In addition to the above outlined courses which are being planned, it will be possible to add other new training courses, as activities at the Environmental Health Center expand and develop. The response to the courses already outlined, and the training needs as they are expressed by the various States will serve as a guide in the future development of laboratory and field training courses at the Environmental Health Center.





FIELD TRAINING

For Public Health Engineers

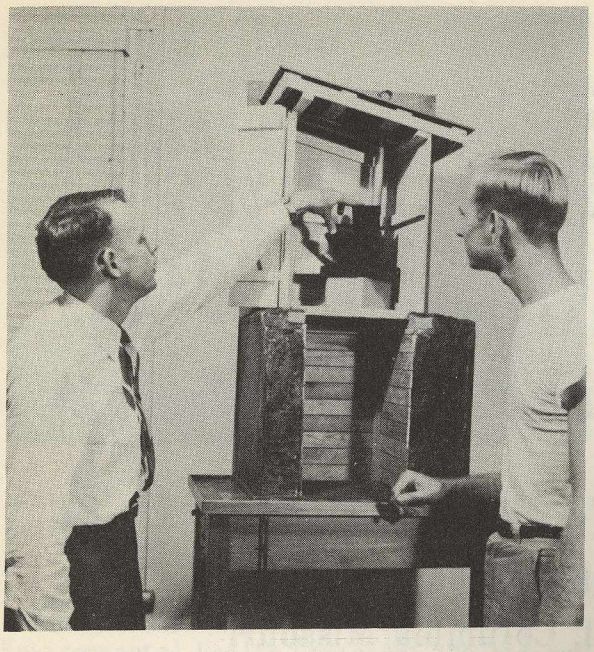
Prof. Lindon J. Murphy,
Sanitary Engineering
University of Missouri, Columbia, Missouri

It was Disraeli who said, "The Health of the people is really the foundation upon which their happiness and all their powers as a state depend." That this truth is becoming evident to a growing number of people is evidenced by the rapid growth and expansion of health facilities at all levels.

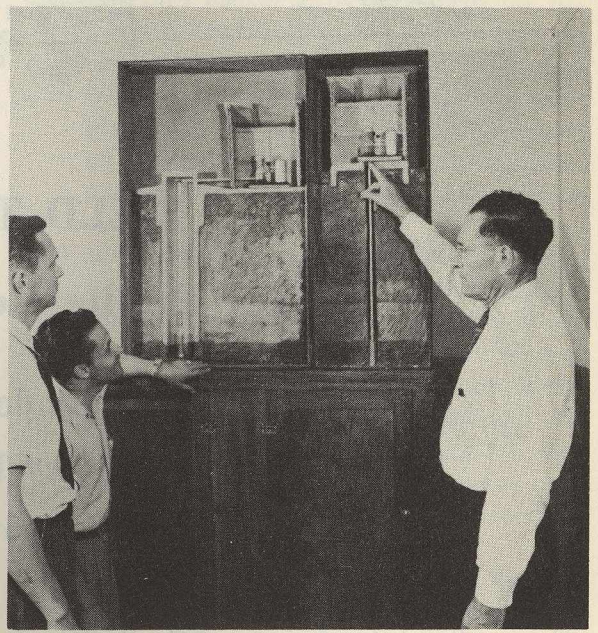
A recent publication of the U. S. Public Health Service required 16 pages to list available positions in State governments in the field of environmental sanitation alone. If the openings at the local level and those at the Federal level were included, obviously the list would be greatly expanded. Today the supply of trained personnel to fill these positions is grossly inadequate. If this is not to be true in the foreseeable future, training practices will have to be materially revised and improved.

Public health engineering today is very different from the sanitary engineering of only a few years ago. Water and sewage treatment were then the major, and frequently the only, concern of the sanitary engineer. Today the public health engineer has become a member of an integrated team whose broad concern is the health — the prevention of sickness — of the whole community. He is expected to be an authority not only in water and sewage treatment, but also in that broader field commonly spoken of as environmental sanitation, including garbage and refuse disposal, school sanitation, insect and rodent control, housing sanitation, plumbing control, swimming pool sanitation, industrial hygiene, and food and milk sanitation. He must know the common communicable diseases and their relationship to the environment, the effect of fluorides on the teeth of children, and many other matters affecting health quite beyond the ken of his sanitary engineer predecessors. All of this indicates the breadth and scope of the training which the public health engineer must have if he is to measure up to his responsibilities and opportunities. This leads to questions of the extent and kind of training needed, and where and how it can best be given.

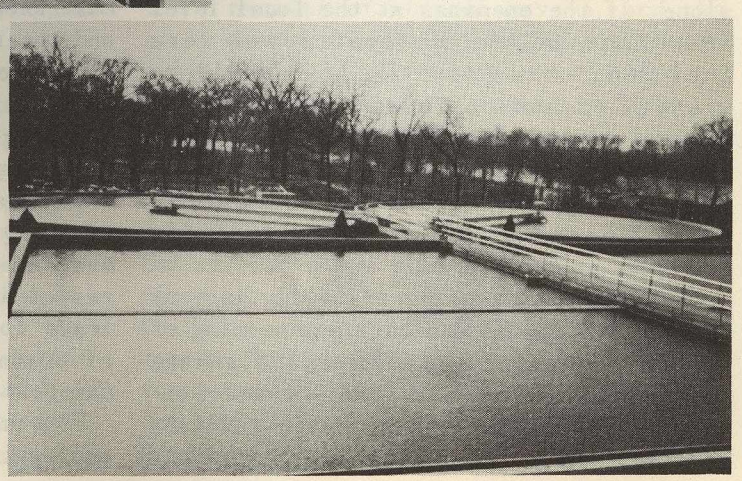
Fortunately our professional schools and colleges are alert to changing needs and



Model of rural sewage-disposal system.



Well and pump models for rural water supply.



Interior (above) and exterior (right) of water plant.

are attempting to prepare their graduates for today's problems. However, because of the wide demand for engineers in public health work and the opportunities in this field, many whose studies qualified them as specialists in water treatment or wastes disposal — or even bacteriology or chemistry — now find themselves in public health engineering with a limited knowledge of, or at best only a theoretical familiarity with, the broad aspects of environmental sanitation.

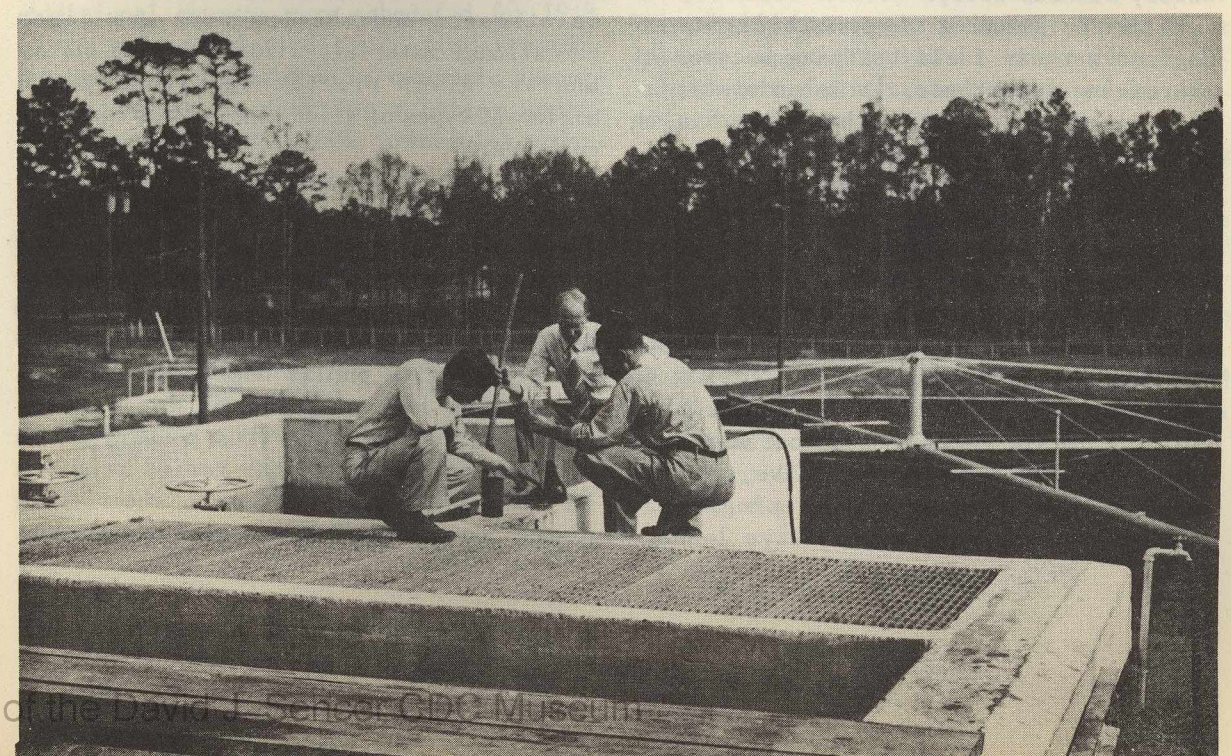
As is true for the physician and the nurse, excellent academic preparation is not enough. The public health engineer must have a period of field training comparable to the internship of the physician and the hospital training period of the nurse before he is fully prepared to assume a responsible place in a modern health department.

What field training does a public health engineer need to prepare him for the problems and responsibilities of today? Obviously it should be broad enough to acquaint him with the problems over the wide field of environmental sanitation and should include sufficient practice under competent supervision so he may develop judgment of standards and procedures.

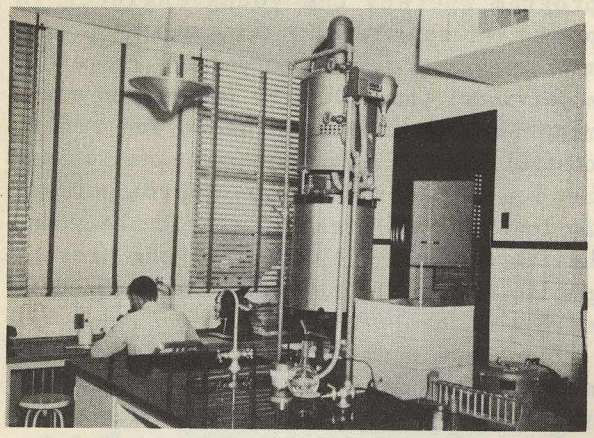
How and where can such field training best be given? To be sure, some health departments are able to follow a planned program whereby the young engineer is placed on, say, rural water supply improvements for a given period under a competent supervisor; then by given periods on swimming pool sanitation, insect and rodent control, etc., all under expert supervision. Such a program if even approximately followed should greatly benefit the young health engineer. A number of our present public health engineers were developed in such a manner.

There are many factors, however, which make this procedure difficult today. Very few health departments have the rounded programs which make broad-gage training possible, and fewer have supervisory personnel available in each of the phases of environmental sanitation who are skilled in imparting to the trainee in a minimum of time the important principles and practices involved. Since most health departments today are understaffed, it is necessary to place a new man on that phase of the program needing immediate attention. Unless the young man himself insists on a change, there is a natural tendency to leave him where he has gained a measure of competence. So all too frequently he becomes adept in certain aspects of environ-

Sanitary engineers collecting sewage samples for analysis.



Public health laboratory



mental sanitation without developing that broad acquaintance and judgment which the public health engineer should have.

While State health departments, and some large city-county health departments, can afford the luxury of specialists in water treatment, sewage disposal, etc., in the vast majority of local health departments the public health engineer must cover the whole field of environmental sanitation or supervise the activities of sanitarians in various phases of the field. Thus it is important that the young health engineer today who is to be "on his own" in a health department have the type of field training which will enable him to function effectively without delay.

With the growing responsibilities of engineers their field training becomes of increasing importance. It is understandable, therefore, that with so few health departments prepared or staffed for efficient field training the cooperation of the U. S. Public Health Service should be requested. Since an equal need existed on the Federal level for this same broad yet thorough-going field training, the Public Health Service agreed to join with State and local health agencies in setting up cooperative field-training schools. A suitable locale for such a school was found at Columbus, Ga., where an active, comprehensive city-county health program is carried on under the progressive leadership of Dr. J. A. Thrash. Here E. S. Tisdale, Director of the Training Division, Communicable Disease Center of the Public Health Service, has assembled a staff experienced in the supervision of training as well as in modern field practices.

To date two intensive 12-week field-training courses for public health engineers have been conducted during the summers of 1947 and 1948. The supervised field practice has ranged from water plant operation to sewage works control, stream-pollution studies, garbage and waste-disposal practices, school sanitation, housing sanitation, swimming-pool sanitation, insect and rodent control, laboratory practices, food and milk sanitation, abattoir inspections, ice-plant sanitation, and industrial sanitation.

In addition, the group is briefed on health department organization and functions and the relationship of the public health engineer to housing, city planning, urban redevelopment, rural sanitation, and similar programs. The trainees make an actual community sanitation survey and learn typical city-county health conditions first-hand by inspections of food establishments, dairies, ice plants, fly-breeding areas, etc., as well as by visits with public health nurses and sanitarians as they perform their day-by-day duties. The importance of public health education is stressed and the trainees are given educational material, slide and film lists, and are given practice in running the different types of slide and film projection machines.

Such field-training programs appear to meet a definite need of health departments at all levels for comprehensive authoritative training of young sanitary engineers under proper supervision in a minimum period. The training school appeals to the prospective public health engineer as it enables him to learn by doing under competent supervision, thus preparing him to effectively tackle the varied problems in environmental sanitation when he is placed "on his own" in a health department.

MILK and FOOD SANITATION

TRAINING COURSES

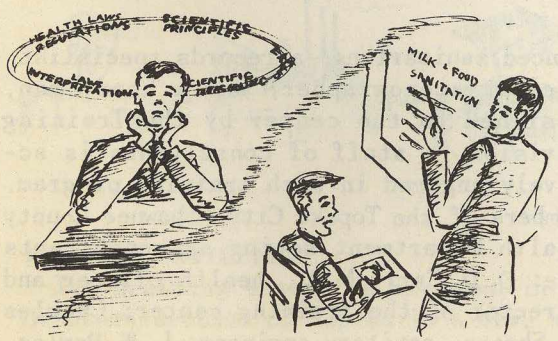
Topeka, Kansas

H. E. Eagan, Training Officer

Short courses in milk and food sanitation have become an integral part of the field training programs offered at the regional training center in Topeka, Kans. They supplement the courses offered at this station in environmental sanitation and fill a definite need of the State and local health departments for the short or refresher course in milk and food sanitation.

The first course at Topeka in milk sanitation was held in February 1948, at the request of local health departments in nearby cities. As a result of the many requests for training of this type, a second course in milk sanitation and a course in food sanitation were given in 1948, and additional courses were scheduled for 1949.

The milk- and food-sanitation training programs were developed on two basic assumptions: (1) the need for a better understanding of the scientific principles underlying existing health laws and regulations, and (2) the need existing in the health departments, represented by the trainees, for uniform standards of interpretation of the laws and regulations based on sound scientific reasoning.



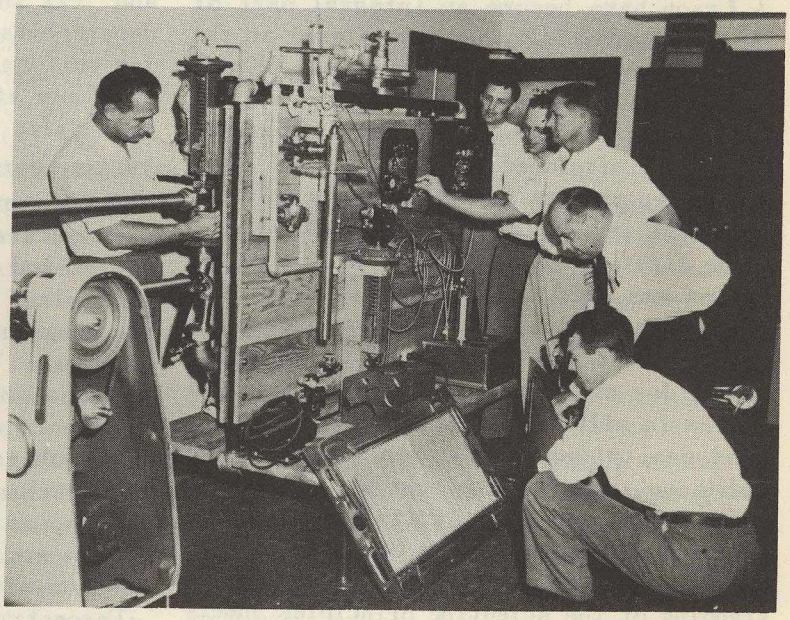
COURSE CONTENT

Due to work loads in the local health departments and lack of adequate funds for travel and stipends, the training program is limited to 2 weeks. The first part of the program is devoted to lectures and discussions. The "Milk Ordinance and Code" and "Eating and Drinking Establishment Ordinance and Code," recommended by the U. S. Public Health Service, are studied. Field trips are made to nearby farms, milk plants, and restaurants. Inspection techniques are demonstrated, followed by discussion panels.

Demonstrations are given in the handling of equipment used in milk and food sanitation. The demonstration equipment available at the center is placed "out of adjustment" and disassembled. Working in groups of two, the trainees are required to reassemble the equipment and to make the necessary calibrations. The assembled equipment is placed in operation, and actual operational tests are made by the trainees.

A large file of projection slides, pictures, charts, and diagrammatic and sche-

(LEFT) Sanitarian trainee on a field trip inspecting dishwashing equipment in a local restaurant.



(RIGHT) Milk sanitarian trainees working with short-time high temperature pasteurization equipment.

matic plates are used to illustrate discussions. Moving pictures, film strips, and recordings are also used.

Schedules I and II depict the 1948 daily training schedules in milk sanitation and in eating- and drinking-establishment sanitation. (See page 18)

TRAINING STAFF — COOPERATION

In addition to the staff of two experienced sanitarians, a records specialist, a clerk-stenographer, and a handy man, assigned to the center by the Training Division, a staff of consultants is actively engaged in each training program. Members of the Topeka City - Shawnee County Health Department acting as consultants are: D. D. Carr, M.D., health officer and director of the training center; Charles J. Sheetz, sanitary engineer; L. W. Rowles,

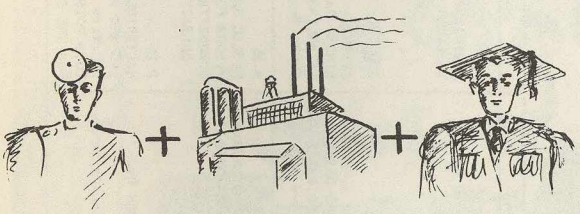
D.V.M., director of milk control; Jeanette Rosenstock, director of nursing; and Emil Freienmuth, bacteriologist.

As an active consultant to the staff, Judge Harry K. Allen, Dean of the Law School at Washburn University, brings the legal aspects of public health practice to the trainees. Judge Allen is a practicing attorney and a former member of the Kansas State Supreme Court.

Members of the Kansas State Board of Health, while not paid on an hourly basis, are also available to act as instructors, and devote many hours to the programs. This arrangement permits the training staff to act with full confidence of the operating staff of the local and State health departments, and allows ready access to all facilities within the training area.

The proximity of the U. S. Public Health Service Regional Office No. 7 permits close liaison. Recruitment of trainees and surveys of training needs in the area are made by this office and transmitted to the training center.

A feature of the training programs is the presentation of special subjects by authorities in public health, cooperating university faculty members, and representatives of the industries involved. The interest of these cooperating agencies in promoting a fuller knowledge and understanding is exceptional. The guest lecturers donate their time to the training center, with many coming long distances and at great expense.



TRAINING FACILITIES

The training center is situated in the downtown section of Topeka in a new, modern, 4-story building. The training quarters consist of offices, library, demonstration laboratory, and a classroom capable of seating more than a hundred persons. Air conditioning is provided during the summer months.

The demonstration room is equipped with a 3-compartment sink, dishes, refrigerator, and other small pieces of equipment. Water-supply equipment consists of a rotary pressure-pump and tank, cylinder pump, jet pump, cutaway models of a pitcher pump and two throw-cylinder pumps, and a number of well points and valves.

The milk equipment consists of all necessary thermometric controls, a flow-diversion valve, holding tube, Waukasha Reeves Drive Pump, heat-control valves, and heat exchangers. This equipment is mounted on one large standard. All appurtenances for conducting the various short-time, high-temperature pasteurization-equipment tests are available, and all equipment is readily assembled for operation.

Other pieces of plant equipment demonstrate certain parts of a "holding type" pasteurization plant. This equipment consists of pieces that are not readily available to the sanitarian under ordinary public health practices. Leak-protector valves, air-space heating equipment, float valves, cappers, and other miscellaneous pieces are provided.

A milking machine is available for experimentation and operation. For illustration of discussions, there are models of privies and dairy barns, a completely equipped model-restaurant, and other facilities. The purchase of a dishwashing machine is contemplated as quickly as proper facilities become available.

ATTENDANCE

A total of 52 trainees representing 12 States, completed the three courses in milk and food sanitation held at Topeka during 1948. Visitors and part-time participants from health departments and industry brought the actual average attendance at these classes to about 30 or 35.

SCHEDULE I

MILK SANITATION TRAINING

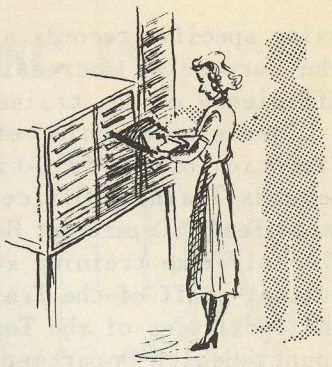
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
FIRST WEEK	A.M. MILK-BORNE DISEASES P.M. HERD HEALTH Diseases of Animals Affecting the Milk Supply	A.M. MILK SANITATION PROGRAMS Education Organization Enforcement P.M. U.S.P.H.S.-RECOMMENDED MILK ORDINANCE AND CODE, Enforcement Section 1-5, 1-18	A.M. U.S.P.H.S.-RECOMMENDED MILK ORDINANCE AND CODE, Dairy Farm Standards Section 6 and 7r, Panel Discussion P.M. Continuation of Morning Session	A.M. LABORATORY Sampling Field Tests Interpretation P.M. BARN AND MILK HOUSE CONSTRUCTION – Details	A.M. FARM AND MILK PLANT WATER SUPPLY AND WASTE DISPOSAL– Construction Detail P.M. DAIRY FARM FIELD INSPECTION Demonstration Discussion	A.M. MILKING METHODS P.M. RAW MILK PRODUCTION Producer – Distributor Producer to Plant
SECOND WEEK	A.M U.S.P.H.S.-RECOMMENDED MILK ORDINANCE AND CODE, Pasteurization Plant Standard, Section 7p P.M. Continuation of Morning Session	A.M. PUBLIC HEALTH ASPECTS OF THE PASTEURIZATION OF MILK P.M. PASTEURIZATION EQUIPMENT STANDARDS (Construction, Layout, and Operation)	A.M. CLEANING AND BACTERICIDAL PROBLEMS P.M. PASTEURIZATION CONTROLS — Demonstration and Participation	A.M. TESTS OF PASTEURIZATION PLANT EQUIPMENT — Demonstration and Participation P.M. Pasteurization Plant Field Inspection Demonstration	A.M. SANITATION SURVEYS — "A METHOD OF EVALUATION" P.M. PANEL - MILK SANITATION Review and Summary	A.M. FINAL EXAMINATION

SCHEDULE II

EATING AND DRINKING ESTABLISHMENT SANITATION

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
FIRST WEEK	A.M. WHY ARE YOU A FOOD SANITARIAN? P.M SEMINAR – U.S.P.H.S.-RECOMMENDED EATING AND DRINKING ESTABLISHMENT ORDINANCE AND CODE- Sections 1-4 and 7-14	A.M. SEMINAR — Continued Sections 1-4 and 7-14 P.M. SEMINAR- U.S.P.H.S.-RECOMMENDED EATING AND DRINKING ESTABLISHMENT ORDINANCE AND CODE- Sections 5 and 6	A.M. SEMINAR — Continued Sections 5 and 6 P.M. DETAILS OF FOOD SANITATION ADMINISTRATION	A.M. FOOD HANDLERS' HEALTH IN RELATION TO DISEASE TRANSMISSION P.M. JURISPRUDENCE IN RELATION TO EATING AND DRINKING ESTABLISHMENT SANITATION	A.M. SANITATION IN RELATION TO RESTAURANT ECONOMICS – Mechanical Dishwashing Machines P.M. KITCHEN AND SERVICE ROOM DESIGN AND OPERATIONAL FEATURES	A.M. BOTTLING PLANT SANITATION P.M. FIELD TRIP Traveling Laboratory and Coca-Cola Bottling Company Plant, Topeka, Kans.
SECOND WEEK	A.M. SPECIAL PROBLEMS–ITENERANT RESTAURANTS AND RESORTS P.M. FOOD PRESERVATION BY FREEZING Frozen Food Locker Sanitation	A.M. PUBLIC RELATIONS SODA FOUNTAIN AND LUNCHEONETTE DESIGN AND OPERATIONAL FEATURES P.M. BACTERIOLOGY OF FOOD POISONING AND FOOD PARASITOLOGY— A Review FOOD POISONING – EPIDEMIOLOGY FOR THE SANITARIAN	A.M. DETECTING UNWHOLESOME AND ADULTERATED FOODS P.M. INSECT AND RODENT CONTROL METHODS FOR FOOD ESTABLISHMENTS	A.M. DETERGENTS AND BACTERICIDES– COMPOSITION, USAGE, AND TESTS P.M. DETERGENTS AND BACTERICIDES Continued	A.M. SPECIALIZED PUBLIC HEALTH TRAINING FOR EATING AND DRINKING ESTABLISHMENT EMPLOYEES P.M. PROPOSED AMENDMENTS – U.S.P.H.S.- RECOMMENDED EATING AND DRINKING ESTABLISHMENT ORDINANCE AND CODE	A.M. WHAT DO WE DO NOW?

Practical Public Health Records Course Topeka, Kansas



Alpha Kenny, Training Officer

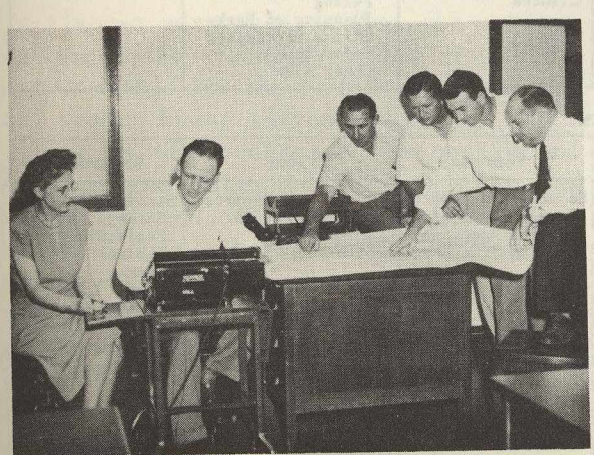
Recognition of the importance of the clerical position in local and State health departments, and of the lack of facilities offering an opportunity for training of secretaries and clerical workers in public health practices, created a demand for such a program. Public health administrative personnel expressed a need for this training. The health officers and administrators were sympathetic toward improving the qualifications of this type of personnel and increasing their job-interest.

A program of training based on the philosophy of "learning by doing" was offered to the administrators of the Kansas State Board of Health. This program was approved and presented to a selected group of qualified individuals. This "pilot course" had a two-fold objective:

(1) To improve the operational efficiency of the local and State health departments.

(2) To orient the clerical position in relation to public health organizations, emphasizing the value of the work and of opportunities in this field. Such work includes administrative work, personnel work, research and statistics, laboratory work, and nursing.

These objectives were obtained by acquainting the trainees with the programs of public health services offered by official and nonofficial agencies. Emphasis was placed on the position of the secretary in relation to the over-all public health practices of local, State, and Federal governments. Better understanding was gained by explaining the functions and responsibilities of the divisions of official agencies. Study and practice in the art of proper record-maintenance was offered,



Training officer and trainees discussing use of health department records in an informal class session.

using specific records and procedures for the purpose of increasing the personnel efficiency of the trainee.

Classes were conducted under the joint direction of the full-time Public Health Records Training Officer and the Kansas State Health Department Records Consultant. The full-time training staff and the consultant staff of the Training Center, and the facilities of the Topeka City-Shawnee County Health Department and the Kansas State Board of Health were available. The Chief of Records and Reports Section of the Bureau of States Services, U. S. Public Health Service, came to Topeka, to present the subject, "Records and Reports Requirements of Federal Agencies." The mode of instruction was by lectures, classroom discussions, visual aids, and supplementary reading.

Participation in the keeping of records under competent supervision was integrated throughout the program. Opportunity to observe the facilities and functions of the local and State health departments was provided. Each trainee was required to prepare a manual containing local, State, and Federal reports and records. The completed manuals were retained by the trainees for reference. The systems of reports and records of various out-of-State local and State official agencies were studied and incorporated in the reference manuals. All classes were conducted in an informal manner and the trainees were encouraged to express their viewpoints freely.

The individual attention required by the trainees for this type of training limits the number of persons attending each session to eight. Preparation of the reference manuals requires accurateness in detail by the trainee and the instructor.

Schedule No. III depicts the day-by-day work during a 2-week period.

SCHEDULE NO. III

DAILY SCHEDULE OF PRACTICAL PUBLIC HEALTH RECORDS COURSE

FIRST WEEK

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
A.M.	Registration	The Work of a Local Health Department	The Work of a State Health Department	The Work of the U. S. Public Health Service	Secretarial Efficiency Correspondence Mailing Receptionist Duties Appointment Processing Records Preparing Reports Filing Planning of Work Office Procedures References Other Aids	Public Relations
P.M.	Introduction to Course	Observation Trip Local Health Department	Observation Trip Division of State Board of Health	Observation Trip Sanitorium and Clinics		

SECOND WEEK

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
A.M.	Administrative Records Financial Personnel Vital Statistics Reports Publicity	Service Records Communicable Diseases Individual Services Maternity Infant Pre-school School	Service Records Sanitation Laboratory Dental Medical Clinics	Records and Reports Requirements of Federal Agencies Working Procedures	Records and Reports of Local Health Departments	Special Reports Surveys Evaluations Tables Charts Maps Applied Drawing
P.M.				Records and Reports of the State Board of Health Working Procedures	Reports Source of Information Methods of Compiling Relation to Records Preparation	Reports of Trainees

DECENTRALIZED TRAINING IN INSECT AND RODENT CONTROL

Scientist Ralph C. Barnes

The scope of insect and rodent control training activities is being extended through the presentation of courses in different sections of the United States. These programs are usually planned in cooperation with Public Health Service Regional Offices and State Health Departments for the training of State and local public health personnel. Where time and facilities permit, programs may also be arranged for other groups, such as schools of public health and pest control organizations.

Decentralized training programs are being offered in order to reach a greater number of people than can be accommodated through the courses given in Atlanta. There is also an advantage in that the subject matter may be arranged so that it will be most suitable for the particular geographical region being served.

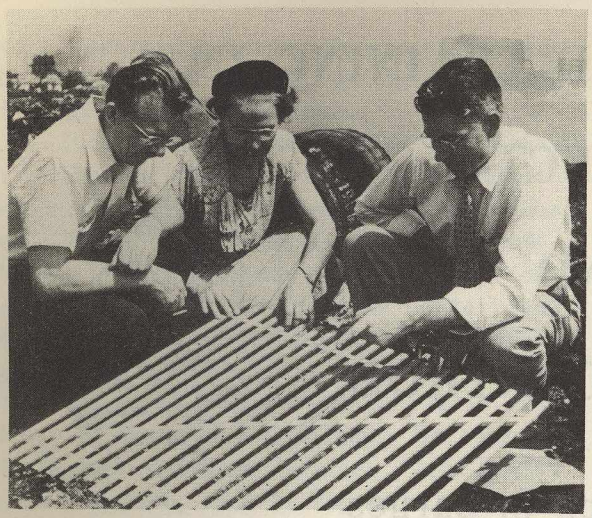
Most of the courses given outside of Atlanta are intended for training for sanitarians and other public health workers who have little background in insect and rodent control. These courses are designed togive such personnel a basic understanding of the biology and importance of insect and rodent vectors of human disease, and to acquaint them with practical measures which can be recommended for the control of such vectors.

Since July 1, 1947, the Communicable Disease Center has presented or assisted with 11 insect and rodent control schools in the States of Louisiana, Mississippi, South Carolina, Virginia, and West Virginia. They have been attended by approximately 430 persons. A brief resume of these programs is given below under headings of the various States concerned.

LOUISIANA

A cooperative arrangement has been made with the Louisiana Public Health Training Center at New Orleans whereby the Training Division presents the insect and rodent control portion of their regular training courses for sanitarians. Four of these one-week programs were given on November 17-20, 1947; March 29-April 2, 1948; July 12-16, 1948; and November 15-19, 1948. They were attended by 49 persons.

These courses are arranged so that approximately half of each day is spent in the classroom and half in the field. Lectures and discussions are kept to a minimum and are supplemented by demonstrations, slides, and films. Field work is performed in cooperation with existing control programs of the Louisiana State Health Department and the New Orleans City Health De-



Instructor demonstrating use of fly grill.

Trainees learn rat-trapping techniques.

partment. Thus, trainees have an opportunity to observe and practice most of the recommended methods of controlling insects and rodents of public health significance. Each course includes 2 days on mosquitoes and their control, 2 days on rat and rat ectoparasite control, and 1 day on flies, ticks, and miscellaneous household insects.

A more advanced insect and rodent control course was also given at the Louisiana Public Health Training Center on May 17-21 for graduate students in the Department of Public Health of Tulane University. This course covered in a somewhat more intensive manner about the same subjects as those listed above. It was attended by 16 students.

MISSISSIPPI

In cooperation with the Mississippi State Health Department, CDC conducted two short insect and rodent control schools at Greenwood, Miss., on July 29-31, 1947, and at Hattiesburg, Miss., on August 5-7, 1947. They were attended by approximately 100 sanitarians and other public health personnel from all parts of the State.

In each of these schools, two days were spent on mosquito and malaria control, one day on the control of flies and other household insects, and one day on rat control. The courses consisted principally of lectures and discussions supplemented by appropriate films. About one-half day of each course was occupied with field demonstrations on mosquito control, fly control, and rat control.

SOUTH CAROLINA

Two courses in insect and rodent control which were organized by the South Carolina State Health Department and U. S. Public Health Service District 2 were presented at Columbia, S. C., on April 19-21 and April 21-23, 1948. The Training Division cooperated by furnishing a training officer, who presented many of the lectures and participated in the discussions, and by furnishing slides and films. The courses were attended by about 150 men including sanitarians and other State and local health department personnel.

The two two-day courses were identical and covered mosquito and malaria control, fly control, tick control, household insect control, and rat and rat-ectoparasite control. Most of the work was presented through lectures and discussions which were accompanied by films and slides. Demonstrations of certain techniques used in evaluating murine typhus fever control were also included.

VIRGINIA

A 2-day insect and rodent control course was conducted at Norfolk, Va., on February 2-3, 1948, by the Virginia State Health Department, U. S. Public Health Service District 2, and CDC. It was attended by about 65 State and local public health personnel of Southeastern Virginia.

One day of this course was devoted to mosquito, fly, and tick control and 1 day to rat and rat-ectoparasite control. The program consisted principally of lectures and discussions supplemented by slides and films. Demonstrations of equipment used in insect and rodent control and of certain techniques used in evaluation of murine typhus fever control were also featured.

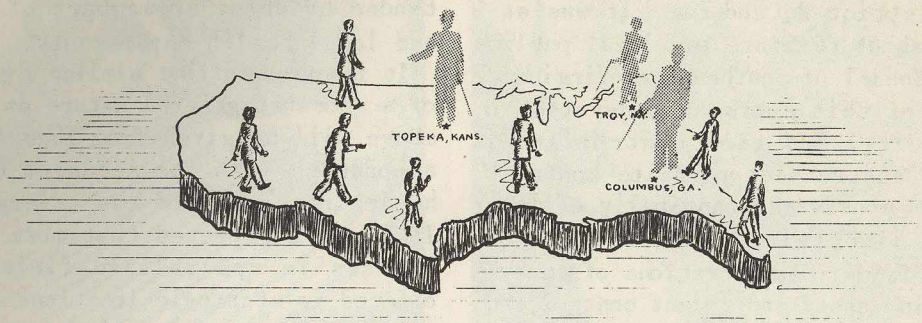
WEST VIRGINIA

The CDC assisted U. S. Public Health Service District 2 in presenting two two-day courses in insect and rodent control at Clarksburg, W. Va., on October 15-17, 1947, and at Beckley, W. Va., on October 20-22, 1947. These schools covered rat control as well as fly, mosquito, and household insect control. They were attended by about 50 members of the State and local health departments.

It is expected that similar short courses of a somewhat general nature as described above will be given from time to time in accordance with the needs of the public health personnel of the several states. It is also expected that more intensive courses in specialized fields will be offered in strategic locations outside of Atlanta. For example, plans are now being made to conduct fly control training courses in certain cities where Communicable Disease Center fly control programs are under way. It is probable, however, that most of the advanced courses will continue to be given only in Atlanta where more adequate facilities are available.

Trainees inspecting artificial resting station for adult mosquitoes.

Sanitarian Field Training



C. D. Spangler, Sanitary Engineer

Columbus Field Training Station, Columbus, Georgia

The effectiveness of public health control programs in the United States is now seriously prejudiced by a shortage of qualified personnel. The shortage is perhaps most evident in the field of environmental sanitation. This is particularly so because there are no accepted standards for measuring the quantity and quality of a sanitarian's work and, therefore, health departments are prone to employ a sanitarian without sufficient consideration of his qualifications. Many new local departments are now being formed, needing trained men who can secure results in sanitation programs, and who can do their share in selling public health to their communities. Many existing departments need men for replacements, or additional personnel to provide for expanding programs. Even many sanitarians with years of experience can benefit by a comprehensive training course under competent instructors.

The big-city health departments that have specialists in the several phases of environmental sanitation can train a new employee by assigning him to work with experienced men; but such training does not give an over-all picture of the field of sanitation, nor does it give him a proper perspective of his own job. Therefore a generalized training is needed for the man in the small department who must be prepared to conduct all types of sanitation activities. Such training is also needed for a man who later may specialize.

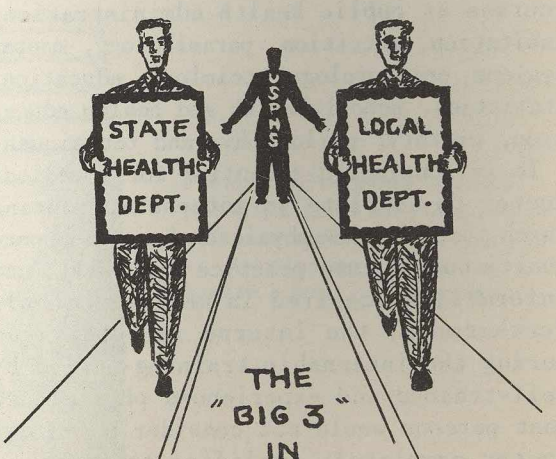
Generalized training for the sanitarian should include the sanitary control of water and sewage — mainly from the rural standpoint — of milk and other foods, insects and rodents, schools, camps and resorts, swimming pools, and garbage and refuse. Also this training should familiarize him with activities such as rabies control, sanitary surveys, housing sanitation, and other pertinent subjects which may be of particular importance in the area in which he is situated. In addition, the sanitarian should have some knowledge of bacteriology, communicable disease control, administration, local government, budgets, and similar matters.

This training might be given in the man's own department, but this would limit the training to the relatively few large health departments. In addition, this assumes that the various people doing the training would

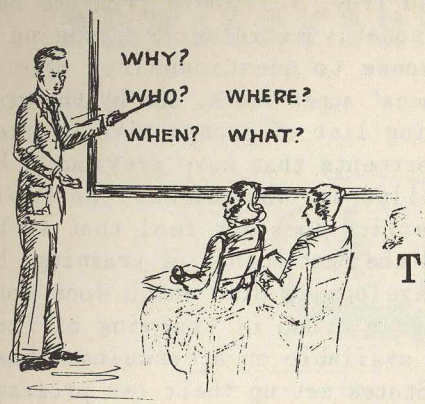
be qualified by experience to teach, would be able to give the trainee not only the mechanics of the work, but also the theory and reasons behind it. The type of man who can do this is not usually found in the average health department, and when found, is usually too valuable to release from administrative or operational activities to training work. Small health departments would obviously have difficulty in training new personnel, especially if they were not carrying out a complete and well-rounded program. Newly formed departments would have to secure men from older units, which is exceedingly difficult, or start with untrained people.

A logical answer would seem to be the eventual establishment of training centers operated by the several States. A number of States have operated field training stations at one time or another with varying degrees of success. The Public Health Service engaged in training activities during the war as a part of the Malaria Control in War Areas program. After the war this experience was used to set up some experimental training stations to explore various programs, methods, training aids, physical equipment, and staff needed to operate satisfactory field training for sanitarians. In the process a number of sanitarians were trained, pending the time their States could set up their own training programs. Most States, no matter how small or poorly staffed, will be able to justify a permanent training program, even if that training is no more than the assignment of three or four men twice a year into one of the better health departments, there to complete a carefully laid-out course of instruction and supervised field experience. The training staff should be the best available in the State, since the trainee will reflect the quality of training received. During the training period those who serve on the training staff should have no other duties or responsibilities.

The Public Health Service has been operating sanitarian training programs in cooperation with State and local health departments at Columbus, Ga.; Topeka, Kans.; and Troy, N.Y. These programs have been reasonably satisfactory judging by the response to questionnaires sent to the trainees' supervisors, and by the growing waiting list of prospective trainees from departments that have previously had men enrolled in the course. The Public Health Service does not feel that it has yet found the best method of training, but it has developed a plan which does work. It now has a group of training officers that are available on a consultant basis to help States set up their own programs. The Service believes that effective public health can only be done on the local level with well-trained personnel, and this training program has as its objective the strengthening of the sanitation section of local health departments. The present training stations will continue to function to develop better methods and training aids and to train men for those States not operating a training program. States may send their own training officers to these stations to see the programs and methods in operation. The Public Health Service will extend all possible aid through its staff, equipment, and publications to any State desiring that help.



A PREVIEW OF FIELD TRAINING FOR HEALTH EDUCATORS



Ruth Sumner, Ph. D.
Training Officer in Health Education
Savannah, Ga.

Whether we are interested in learning about one specific program of field training for health educators, or whether we are interested in planning toward such a program in a new area, the essential features involved will include the "five W's" — WHY, WHO, WHEN, WHERE, and WHAT

If we analyze these five features, we might start with the phase WHY, and ask: Why is field training essential for professionally trained public health educators?

Professionally trained health educators complete 9 months of academic training in a school of public health. During this period of graduate study, they take such courses as public health administration, sanitation, nutrition, parasitology, mental hygiene, epidemiology, sociology, education, statistics, school health and health education, history, philosophy, and techniques.

It is considered essential for a medical doctor to complete an internship, during which time the new physician has the opportunity to put into practice the skills and information acquired in medical school. Furthermore, the interne is supervised during the internship training-period by well-trained and experienced physicians. Most persons would not consider a medical doctor completely qualified to practice medicine until he has completed the internship.

If we carry the same philosophy into public health education, then this period of field training should provide an opportunity for the health educator to put into practice the information and techniques that he has learned in a school of public health.

Many of these schools consider field training so important that they do not grant the Master's degree in Public Health to health educators until they have satisfactorily completed 10 to 12 weeks of field training.

The second consideration of field training — WHO — has some particularly important phases:

1. Who should be given field training? Only those who evidence aptitude for this career by successfully completing such academic classes as are required by the school of public health in which they are enrolled, and are considered emotionally and physically qualified for this profession.
2. Who should supervise such training? The supervisors must be as well trained as the trainees they are to guide. This means that the field-training supervisor should have a graduate degree in public health from a university school of public health that is accredited to train health educators. I would also recommend that

the supervisor should have completed at least 1 year of experience at the local level before beginning supervisory activities.

Occasional visitation of trainees by State-level personnel should not qualify as *adequate* supervision during the field training period. It is therefore essential that the supervisor be working in the same department to which the trainees are assigned, thus avoiding supervision by "remote control."

It is also highly desirable that the training supervisor be working in the field-training center at least 6 months prior to the arrival of the trainees. This will give the supervisor, as well as the trainees, a better opportunity to develop a personal sense of security and satisfaction as they progress through the field-training program.

WHEN should field training be scheduled?

The schedule will of necessity be planned jointly between the schools of public health and the staff of the field-training center.

Health-education students attending the University of North Carolina and North Carolina College are assigned to field-training centers from March through May (their spring quarter), after which they return to their schools for an additional 3-month period.

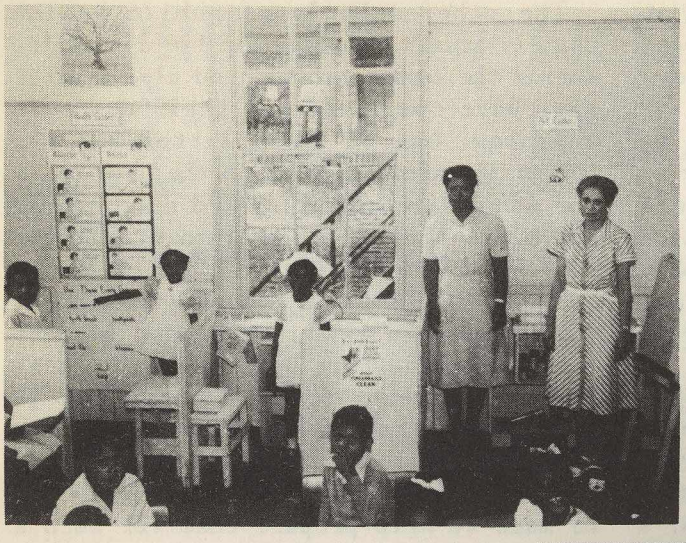
The other schools of public health usually assign students for field training during the summer months, and always after they have completed all their academic training. One of these latter schools brings its students back to the university for a brief conference, 2 to 3 days, during which time they give oral reports of their field-training activities.

WHERE should field training be given?

Most trainees will receive the greatest benefit if they are assigned to a local health department for field training. If they know that their future position is to be at the State level, local adjustment of the content of the training program can be made to help prepare them for such a position.

The local health department should meet certain qualifications if it is to set up a field-training program: (1) It is reasonable to assume that the supervisory and administrative personnel (health officer, nursing director, sanitation director, and health educator) should be well qualified in their respective fields. This would include adequate training in a school of public health. (2) It is also anticipated that the supervisory and administrative personnel will all work as a team in planning and developing the field-training program for health educators.

Public health nurse, school principal, and health club officers work with trainees in development of school health education programs.



(LEFT) Trainees work with teachers, nurses, and pupils on school health educational programs.

(RIGHT) Trainees help nurses with clinic education programs. This nurse is demonstrating baby clothing to a class of mothers.

In addition to a well-trained staff, the field-training center should provide office space and equipment for the trainees. This would preferably include a room with office desks, or tables — one per trainee. This permits concentration on field-training activities without too much interruption. If the supervisor has only one trainee at a time, the trainee might best be placed in the same office with the health-education supervisor.

A film projector and screen are additional essentials for a training center. Some stenographic assistance should be made available to the trainees, such as necessary business correspondence that may arise in the training program, cutting stencils, and mimeographic materials that are developed.

Any health department that is interested in becoming a field training center should do cooperative planning with the schools of public health and with their State health department. Some State health departments have become interested in developing local field-training centers — it is *one* aid in the recruitment of personnel for employment within the State.

WHAT is the field training program?

Field training should be developed as an integral part of the local health work as it exists at the time of the training period.

The program has two phases: orientation and the development of health-education projects.

The orientation period includes local tours and discussions designed to give the

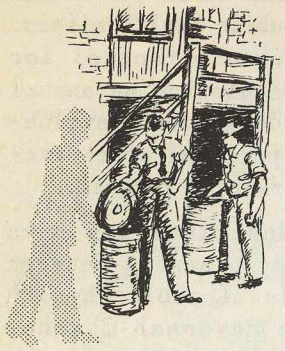
trainee a picture of the local community — schools, housing, government, together with an understanding of how the local area is attempting to solve its health problems. This might include a discussion regarding administration policy and financing of the health department; tours to the local water supply and purification system, sewerage and garbage disposal plants, and a major industry with health and safety programs; home and school visiting with the nurse; restaurant visits with the sanitarian; a visit to a voluntary health-agency; and a study of the records and statistics to learn the major causes of illness and death.

The projects should include such types of activities that require joint planning with other staff members, and with local school and community leaders. A sample set of projects (those for trainees assigned to Savannah, Ga., from March 21 to May 28, 1949) are: participation in community organization and planning activities that are now in progress in the area; work with teachers, parents, children, nurse, and principal on a health program in one school; planning with the nurse for education activities in one public health clinic; planning with sanitation personnel for foodhandler classes; developing an annual report for the health department; evaluation of the trainees' personal effectiveness and of the field-training program.

The program just described has been developed through joint planning between the university schools of public health and the staff of the Savannah-Chatham County Health Department. Some of the schools of public health send a faculty member to visit the training center while their students are in Savannah. This practice is most commendable and shows keen interest on the part of these universities in the quality of field training given and the degree of achievement of their students.

More and better field-training centers are urgently needed, *but* they should be carefully planned to provide the public health educator with an opportunity and a real challenge to meet the needs that are required of this profession.

Trainees help plan and participate in in-service training programs. This is a Health Department Staff Conference on Restaurant Sanitation.



HOUSING SANITATION TRAINING

Ross W. Buck, S. A. Engineer in charge
Housing Training Section

Mark Twain is quoted as saying, "Everybody talks about the weather a lot but no one does anything about it." Almost the same could be said about the subject of Housing. People have been deploring the slums of this country for some time, but relatively few persons have attempted to do anything about the situation.

The American Public Health Association, through its Committee on the Hygiene of Housing, is an organization that has done something on Housing. It has conducted research on the Basic Principles of Healthful Housing; it has developed a method for measuring these principles in existing housing; and it is now exploring the subject of regulations. The method the APHA has developed gives us the tool for evaluating a very complex subject in such a way that ordinary laymen, as well as engineers, can understand these problems. A clear understanding of the basic problems is necessary before policy or plans for concerted action can be carried out without lost motion or wasteful duplication.

The Public Health Service has been cognizant of the need for service in housing sanitation. During the war considerable progress was made in helping communities with their environmental sanitation problems. The need for field training of local health departments in the latest practices and *modus operandi* developed in the last few years has been evident. A housing sanitation section has recently been activated in the Training Division of the Communicable Disease Center to provide this field training. The Public Health Service has entered into an agreement with the Committee on the Hygiene of Health in which the Public Health Service will "promote, install, and service housing surveys." The Training Division of the Communicable Disease Center has been charged with the responsibility of developing training facilities and of supplying consultant services to user agencies. In carrying out this charge, the Training Division has had the cooperation of Dr. James F. Hackney, Director of the Department of Health, City of Atlanta Health Department, and Mr. Stafford W. Graydon, Public Health Engineer. Therefore, it has been possible at this time to conduct a five-week training course in the atmosphere of an active housing program carried out by a city health department. The problems facing each trainee are real and, in most cases, identical with those he will meet at home. It is hoped that sufficient demand in different parts of the country will enable the Training Division to supplement the facilities of the Atlanta Training Station with training at other stations.

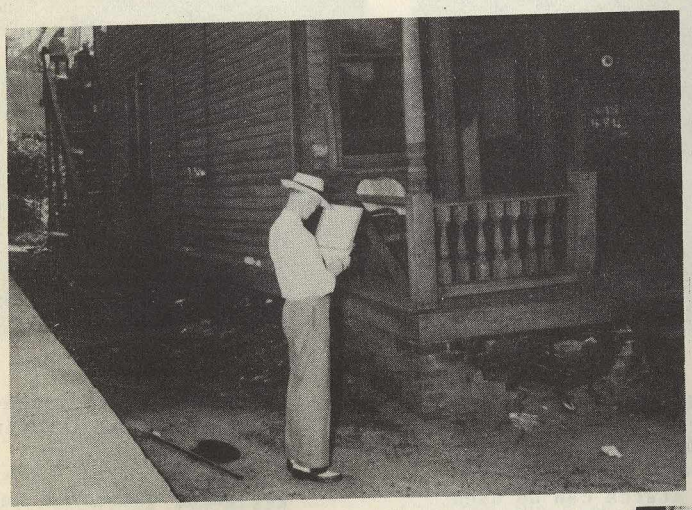
In addition to training on the dwelling appraisals, a certain amount of time is spent in a city planning office. Problems of city planning are discussed and considered as they relate to housing problems and the rehabilitation of blighted areas. Although we depend on the "educational approach" to carry out a program, it is

very necessary that equitable, strong, and constitutional laws be developed in order to rehabilitate blighted areas of a community. Regulatory laws on structures, environment, and rehabilitation are very complex, and a general code applicable throughout the country is not feasible. Each trainee is briefed on certain fundamental points which must be considered when discussing these laws.

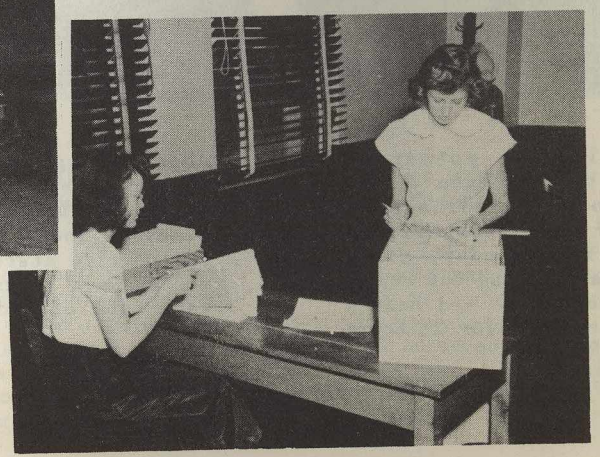
At the present time, six cities in addition to Atlanta have sent personnel to Atlanta for training. These cities are Little Rock, Ark.; Miami, Fla.; Minneapolis, Minn.; Columbus and Savannah, Ga.; and Bloomington, Ind. The program is offered for supervisory personnel of State and local health departments, and for city planning or rehabilitation commissions. Candidates need not be engineers, but persons recommended should have a background of experience in environmental sanitation, statistics, or city planning. Since part of the training period will be spent considering each trainee's local problem, it is important that only personnel well acquainted with their particular areas be considered for enrollment in this program.

It is planned, in cooperation with the Production Division, to develop training aid films, not only on the limited technical subjects such as "deterioration," but also on the broader subjects of the relationship of the dwelling and its environment. Such films can be used to emphasize the need for public health people to make every effort to cooperate with and stimulate other governmental departments. In addition to training aid films, kits for the use of field representatives are being developed. It is contemplated that the kits will fill a much-needed requirement for reference material on the subject of blight elimination.

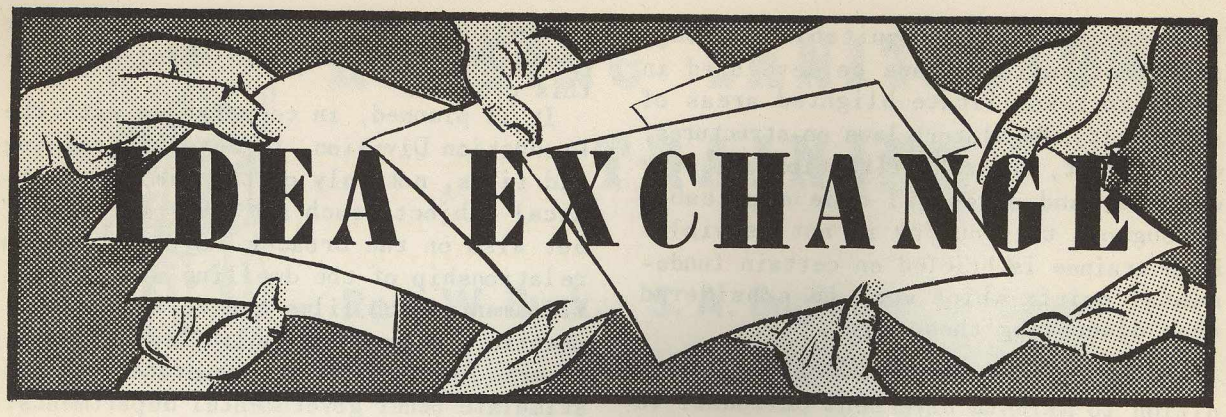
New subject matter is being added to the general subject of Housing Sanitation. Health officers and engineers are becoming interested in home accident prevention and in rural housing and its environment. It is hoped that in the near future field training programs can be offered in these subjects.



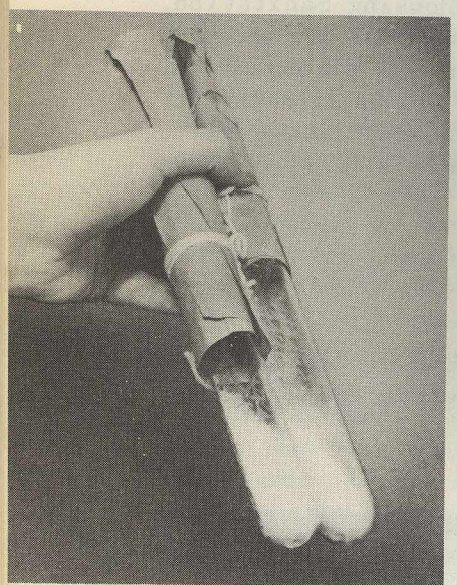
(LEFT) Sanitary Engineer making field inspection of dwelling unit.



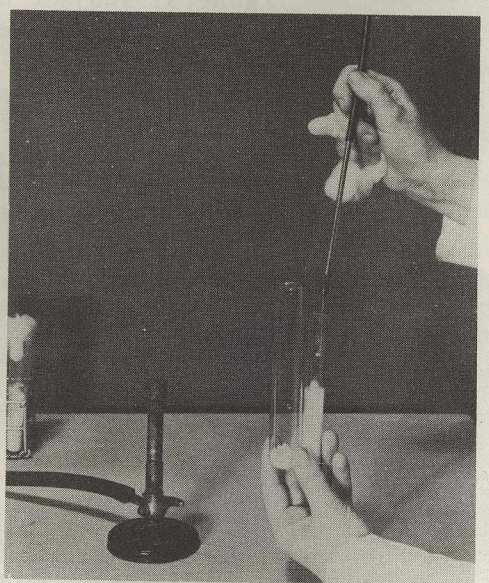
(RIGHT) Clerks assist in the analysis of housing sanitation data.



INOCULATION OF BOECK



Sterile rice powder is added to each tube of the egg-Locke's Medium just before use. To sterilize Difco rice powder, a few grams are spread out evenly in a test tube and heated in a dry oven for 2½ hours at 150° C.

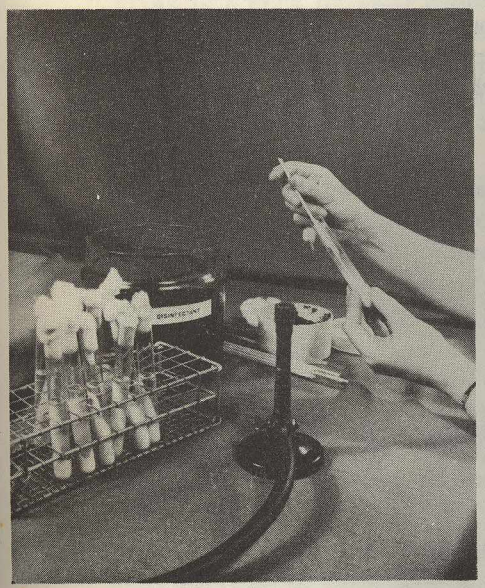


About 30 mg. of the sterile powder is added to each tube of the Medium with a sterile platinum loop. Small dispensers of rice starch can be used and a small amount tapped into each tube of medium.

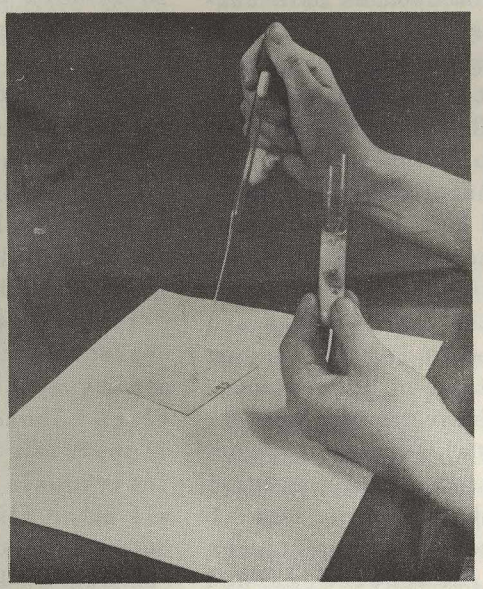
1) If the fecal specimen to be cultured is fluid or semi-fluid, about 0.5 cc. is added to each of two tubes of warmed medium with a large-bore pipette. Care is taken to mix the inoculum with the overlay and to add as little air as possible in the transfer.

(A continuation of the discussion and picture series, "The Preparation of Modified Boeck and Drbohlav's Medium," contained in the Idea Exchange of the October-November-December issue of the CDC Bulletin.)

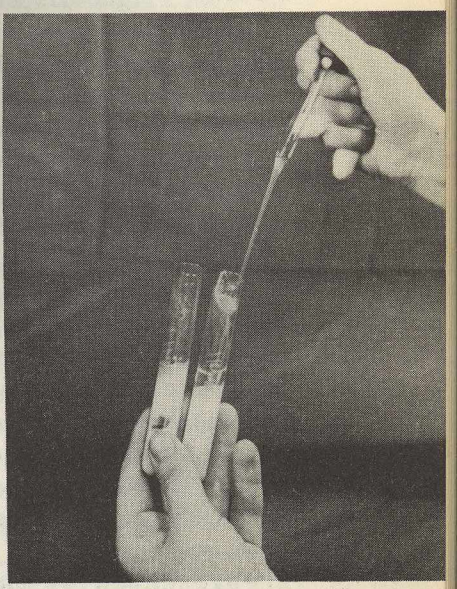
and DRBOHLAV'S MEDIUM



2) If the fecal specimen is formed, portions of the size of a small pea are transferred with applicator sticks and mixed with the overlay by carefully rubbing against the side of the test tube. Portions are chosen from any mucus, blood, or abnormal appearing areas in the fecal bolus.



After incubation at 37° C. for 24 hours, the cultures are examined microscopically. A few drops of the sediment at the junction of the liquid and the slant are removed with a sterile large-bore pipette, placed on a slide, and covered with a coverslip. The amoeba grow at the bottom of the culture on the surface of the egg slant.



All cultures showing no trophozoites upon examination are transferred to a tube of fresh medium. Between 0.3 cc. and 0.5 cc. of the sediment is inoculated. The original cultures and the transfers are both incubated at 37° C.

Special Projects

The Use Of An Eye-Color Mutation In Fly Dispersion Studies

Methods for marking insects to be used in flight-dispersion studies have utilized fluorescent dyes, colored adhesive dusts, and chemical agents which produce color reactions. Certain drawbacks have been encountered with each method. The fluorescent dyes require special ultraviolet lighting equipment for their identification. The colored adhesive dusts require special application techniques, since too heavy an application interferes with the normal flight of the test insects and too light an application is largely removed by the cleaning activities of the insects, by mechanical jarring during insect activity, and by environmental factors such as rain. The chemical reactions involve special handling and considerable time in view of the small percent of the total trap catches represented by the recaptured marked individuals.

In January 1948, 20 adults of the blow fly *Callitroga macellaria* with bright lemon-colored eyes instead of the dark brown eyes of the wild type were discovered in the insectary of the Technical Development Division of the Communicable Disease Center. This offered an opportunity for providing naturally-marked insects for flight dispersion studies. The individuals with the lemon-eye mutation were separated from the wild flies, and the eggs from 10 females were reared in separate containers. Although the lemon-eye characteristic is a recessive and therefore is not evidenced when these flies are crossed with the wild type, the separation of the first 10 male and 10 female lemon-eyed individuals had occurred before mating had taken place. All the offspring from the original mutants, therefore, had the lemon-eye characteristic.

It has been possible to maintain this characteristic through subsequent generations and to produce several thousand flies. These flies have been ideal for dispersion studies, as the lemon-eyed individuals can be readily sorted from all other flies in the trap catches without any special equipment, lighting, or chemicals. The color does not fade with the death of the fly, at least within the first few weeks that may be necessary for sorting, and is not influenced by either the insects' cleaning activities and flight, or by the environmental factors. Pre-release catches of wild flies have failed to show any lemon-eyed individuals in nature.

Specimens of this mutant type have been placed in the CDC collection in Atlanta, Ga., and in the U. S. National Museum in Washington, D. C.

Book Review

The Blowflies of North America

David G. Hall

Pages v + 477, 5 color plates, 46 plates, 9 text figures. Published by the Thomas Say Foundation of the Entomological Society of America. Printed by the Monumental Printing Co., Baltimore, Md., January, 1948. Price $6.50.

This attractively bound, monographic revision of the North American blowflies is a work of such comprehensive treatment that it will be a standard and necessary manual for workers in the fields of medical and veterinary entomology and public health, as well as for general entomologists and biologists. The current interest in the potential role of these common flies in the epidemiology of poliomyelitis further enhances the timeliness and value of the book.

DAVID G. HALL

This is the fourth of a series of important entomological books sponsored by the Thomas Say Foundation. Earlier volumes appeared in 1916, 1925, and 1931.

The introductory portion occupies approximately forty pages in which the author discusses, in an easily readable style, the history of the classification of blowflies, their importance to man (with particular attention to disease relationships and myiasis), control methods, techniques for collecting and studying blowflies, terminology, and variation. The remainder of the volume is an unusually complete taxonomic revision, with a detailed and illustrated account of both external and internal anatomy of male and female genitalia, and of the larval anatomy, keys to the adults and to the mature larvae as far as known, detailed descriptions of the 27 genera and 83 species recognized from North America, fully documented synonymy, descriptions of all known immature stages, and comments under each species on distribution,

taxonomic relationship, biology, and economic importance. The section on "Literature Cited," which contains biological references cited in the text, lists slightly over 300 titles. The completely cross-referenced index of 11 pages should enable one to locate any generic or specific name or combination that has been used for North American flies of this family.

One feature of this volume which will certainly insure the work a permanent place in entomological literature is the wealth of illustrations. All plates, figures, and photographs are the work of the author himself. They are a monument to his industry and ability. Opinions may differ on generic classification or on the validity of some of the differentiating characters, but the tremendous labor involved in preparing so many excellent illustrations of both adults and larvae must command admiration.

Attention should particularly be called to three important and far-reaching changes in familiar names: (1) the explanation of the adoption for the American screwworm flies of the generic name *Callitroga* instead of *Cochliomyia* (cf. "Common Names of Insects Approved by the American Association of Economic Entomologists", Jour. Econ. Ent. 39: 435, 439, 1946), (2) the proposal of a new generic name *(Apaulina)* for the American bird nest screwworm flies that have hitherto been called *Protocalliphora,* (3) the use of *Phaenicia* for most of the greenbottle flies usually called *Lucilia,* the latter name being restricted in this country to a single species, *L. illustris,* and (4) the use of *Calliphora vicina* R.D. for the common bluebottle fly that has long been known as *Calliphora erythrocephala* (Meigen). *Lucilia caesar,* one of the commonest species cited in the American literature, is said not to be known to occur in North America. — Curtis W. Sabrosky, Division of Insect Identification of the U. S. Bureau of Entomology and Plant Quarantine, Washington, D. C.

Notice: Taken from the "Entomological News," January, 1948, Vol. LIX, No. 1.

New Books In The Library

American association for the advancement of science, Rickettsial diseases of man.

American public health association. Planning the neighborhood.

Benbrook, Edward Anthony. Veterinary clinical parasitology.

Brand, Theodor Von. Anaerobiosis in invertebrates.

Cattell, Jaques (ed). Biographical directory of leaders in education.

Conway, Edward Joseph. Micro diffusion analysis and volumetric error.

Dubos, Rene Jules. Bacterial and mycotic infections of man.

Ewing, Oscar Ross. The nation's health.

Frear, Donald Elisha Harding. Chemistry of insecticides, fungicides, and herbicides.

Gipson, Henry Clay. Films in business and industry.

Helminthological abstracts.

Hevesy, George. Radioactive indications.

Huettner, Alfred Francis. Fundamentals of comparative embryology of the vertebrates.

Huntress, Ernest Hamlin. The preparation, properties, chemical behavior, and identification of organic chlorine compounds, tables of data on selected compounds of Order III.

Livadas, Gregory A. Malaria in Greece (1930-1940).

MacLeod, J. MacL. H. Practical handbook of the pathology of the skin.

Maximow, Alexander A. Textbook of histology.

Pillmore, George Utley. Clinical radiology.

Snodgrass, Robert Evans. The feeding organs of arachnida, including mites and ticks (Smithsonian miscellaneous collection, v. 110) Publication no. 3944.

Van Thiel, P. H. The leptospiroses.

U. S. Congress. House. Committee on interstate and foreign commerce. Local public health service ... 5644 and H. R. 5678.

U. S. Congress. Senate. Committee on labor and public welfare. Medical aid to states ... S678 ...1948.

U. S. National museum. Proceedings, v. 1-64; 1878-1925.

Van Rooyen, Clennel Evelyn. Virus diseases of man.

PRODUCTIONS

Released by PRODUCTION DIVISION
Communicable Disease Center
U. S. Public Health Service

A. Motion Pictures

TITLE AND DESCRIPTION	PRODUCTION NUMBER
AEDES AEGYPTI CONTROL ED. II 16mm, sd, B&W, 18 min, 658 ft.	4-011.1 1946
AIRCRAFT QUARANTINE 16mm, sd, col, 15 min, 525 ft.	4-045.0 1947
ANOPHELES CENSUS 16mm, sd, B&W, 20 min, 735 ft.	4-025.0 1944
AUSTRALORBIS GLABRATUS, VECTOR OF SCHISTOSOMA MANSONI 16mm, si, B&W, 3 min, 100 ft.	*4-066.0 1947
CLIMBING ABILITY OF NORWAY RATS 16mm, si, B&W, 3 min, 100 ft.	*4-057.0 1948
CRIMINAL AT LARGE 16mm, sd, col, B&W, 13 min, 468 ft. (Life cycle of Anopheles quad, and its relation to malaria)	**4-012.0 1945
DDT AS A MOSQUITO LARVICIDE 16mm, sd, B&W, 25 min, 1000 ft. (A long detailed version for spray crews. See 4-035.2 for descriptive page.)	4-035.0 1947
DDT AS A MOSQUITO LARVICIDE 16mm, sd, B&W, 17 min, 635 ft.	4-035.2 1947
THE DIAGNOSIS OF TUBERCULOSIS WITH AN IMPROVED CULTURE MEDIUM 16mm, sd, B&W, 18¾ min, 675 ft.	4-056.0 1948
DYNAMITE, ED. II 16mm, sd, B&W, 12 min, 435 ft.	4-029.1 1944
EGGS AND MIRACIDIA OF SCHISTOSOMA MANSONI 16mm, si, B&W, 3 min, 100 ft.	*4-067.0 1947
EPIDEMIOLOGY OF MURINE TYPHUS 16mm, sd, B&W, 18 min, 665 ft.	4-049
EXCYSTATION AND MOTILITY OF ENDAMOEBA HISTOLYTICA 16mm, si, B&W, 3 min, 120 ft.	*4-070.0 1948
EXPERIMENTAL MALARIA TRANSMISSION 16mm, sd, col, B&W, 18 min, 659 ft.	4-008.0 1946
HAND DITCHING FOR MALARIA CONTROL IN SOUTH CAROLINA 16mm, sd, col, 5 min, 200 ft.	4-047.0
HEALTH EDUCATION AGAINST MALARIA 16mm, sd, B&W, 6 min, 240 ft.	4-010.0 1947
HYDRAULIC DREDGING 16mm, sd, col, 5 min, 195 ft.	4-044.0 1947
INFECTIVE LARVAE OF WUCHERERIA BANCROFTI 16mm, si, col, 4 min, 138 ft.	*4-059.0 1947
IT'S UP TO YOU 16mm, sd, col, B&W, 17 min, 626 ft. (Freeing a city of Aedes aegypti mosquitoes to prevent dengue & yellow fever epidemic.)	4-016.0 1945
LE TOCA A UD 16mm, sd, col, B&W, 17 min, 626 ft. (Same as 4-016.0 "It's Up to You", except Spanish sound track is used.)	4-016.1 1945
MALARIA 16mm, sd, B&W, 13 min, 452 ft.	**4-024.0 1944
MALARIA CONTROL ON IMPOUNDED WATERS 16mm, sd, B&W, 22 min, 800 ft. (approx) (release pending)	4.069.1 1948

NOTE: *Film Shorts or Units (miscellaneous footage of the following types; original shots never used in any complete production; excerpts from the productions of the USPHS and other agencies; surplus shot for specific films but not used. They are designed to help fill the need for unorganized motion picture material on many phases of health, biology, and clinical medicine, especially where the state of knowledge, the production facilities, or the comparative significance of the material does not warrant full-scale master films. Some of them may be used as a partial substitute for microscopic examination where living specimens are not available. Descriptions of these films are grouped on one or more pages of the catalog)

NOTE: **Sound-on-film-strips (These productions consist of freeze-frame photographs and the sound-track from a filmstrip of the same name printed on 16mm motion picture film. There is no motion. They are designed for use where 35mm sound-filmstrip projectors are not available.)

TITLE AND DESCRIPTION	PRODUCTION NUMBER
MANSON'S BLOOD FLUKE 16mm, sd, B&W, 16 min, 592 ft. (release pending)	4-034.0 1948
MICRO FILARIAE OF WUCHERERIA BANCROFTI 16mm, si, col, 4 min, 135 ft.	*4-058.0 1947
MISS KEETER GOES TO TOWN 16mm, sd, col, B&W, 18 min, 648 ft. (fighting dengue & yellow fever through control of Aedes aegypti mosquitoes)	4-023.1 1944
MOSQUITO PROOFING FOR MALARIA CONTROL 16mm, sd, B&W, 10 min, 375 ft.	4-026.1 1946
MOVEMENTS OF ENDAMOEBA HISTOLYTICA 16mm, si, col, 2 min, 76 ft.	*4-061.0 1947
OIL LARVICIDING 16mm, sd, col, B&W, 12 min, 451 ft.	4-017.0 1945
PARIS GREEN LARVICIDING 16mm, sd, col, B&W, 11 min, 401 ft.	4-018.0 1945
THE PATHOLOGY OF SCHISTOSOMIASIS MANSONI 16mm, si, B&W, 2 min, 90 ft.	*4-068.0 1948
POLE DRAINAGE 16mm, sd, col, B&W, 7 min, 270 ft.	4-033.0 1946
PREPARATION AND STAINING OF BLOOD FILMS 16mm, sd, col, 17 min, 615 ft.	4-007.0 1946
PRODUCTION AND PROCESSING OF OYSTERS 16mm, sd, B&W, 16 min, 560 ft.	4-073.0 1948
REARING AND HANDLING OF ANOPHELINE MOSQUITOES 16mm, sd, col, B&W, 15 min, 588 ft.	4-006.0 1945
SANITARY LAND FILLS 16mm, sd, col, B&W, 17 min, 640 ft.	4-052.0 1947
SCHISTOSOMA JAPONICA 16mm, si, col, 4½ min, 158 ft.	*4-060.0 1947
SCHISTOSOMES IN THE PRIMARY HOST 16mm, si, B&W, 17 min, 250 ft.	*4-063.0 1948
THE SETTING OF ENDEMIC SCHISTOSOMIASIS IN PUERTO RICO 16mm, si, B&W, 3½ min, 150 ft.	*4-065.0 1948
SEWAGE TREATMENT 16mm, sd, B&W, 5 min, 174 ft.	*4-078.0 1948
SPOROCYSTS AND CERCARIAE OF SCHISTOSOMA MANSONI 16mm, si, B&W, 5½ min, 200 ft.	*4-064.0 1948
VENEREAL DISEASE & TUBERCULOSIS SURVEY IN GEORGIA 35mm, sd, B&W, 11 min, 112 frames	5-121.0 1948
VIVAX MALARIA 35mm, sd, col, 17 min, 76 frames	5-043.0 1948
YOUR STRIP FILM PROJECTOR 35mm, si, B&W, 65 frames	5-003.0 1945
YOUR UNINVITED GUESTS, ED. II 35mm, sd, B&W, 11 min, 94 frames (Eliminating Aedes aegypti breeding places from the home environment to control dengue and yellow fever)	5-001.1 1945
SU NO CONVIDADO HUESPED (Same as 5-001.1 "Your Uninvited Guests" except Spanish sound track is used)	5-001.2 1945
WORMS IN YOUR MUSCLES 35mm, sd, B&W, 10 min, 52 frames (Trichinosis Film -- Sub-professional audience)	5-095.0 1948

B. Filmstrips

TITLE AND DESCRIPTION	PRODUCTION NUMBER
CHILLS AND FEVER -- WHY 35mm, sd, col, 13 min, 53 frames (Life cycle of the vivax malaria parasite and accompanying symptoms in man)	5-078.0 1947
CLOSING IN (Malaria Control) 35mm, sd, col, 12 min, 66 frames	5-085.0 1948
CRIMINAL AT LARGE 35mm, sd, col, 12 min, 65 frames (Life cycle of Anopheles quadrimaculatus and its relation to malaria)	5-004.0 1945
DDT AS A MOSQUITO LARVICIDE 35mm, sd, B&W, 17 min, 81 frames	5-074.0 1947
EQUIPMENT FOR HAND SPRAYING OF DDT 35mm, sd, B&W, 13 min, 67 frames	5-084.0 1947
EVALUATING DDT DUSTING IN MURINE TYPHUS CONTROL 35mm, sd, B&W, 13 min, 101 frames	5-026.0 1945
FALCIPARUM MALARIA 35mm, sd, col, 17 min, 77 frames	5-040.0 1948
FIGHT AGAINST RABIES 35mm, sd, B&W, 14 min, 89 frames	5-093.0 1947
FILARIASIS 35mm, sd, col, 21 min, 95 frames	5-036.0 1947
GENERAL INSPECTION AND CONTROL ACTIVITIES AT THE AREA LEVEL 35mm, si, B&W, 98 frames	5-021.0 1945
HAND SPRAYING OF DDT 35mm, sd, B&W, 15 min, 72 frames	5-011.2 1946
HAND SPRAYING OF DDT, QUIZ 35mm, si, B&W, 36 frames (Described in catalog sheet 5-011.2)	5-007.0 1946
HOOKWORM DISEASE AND HOOKWORM INFECTION 35mm, sd, col, 13 min, 77 frames	5-073.0 1948
HOSPITAL OF TOMORROW, THE 35mm, si, B&W, 53 frames	5-100.0 1948

* See footnote, page 37.

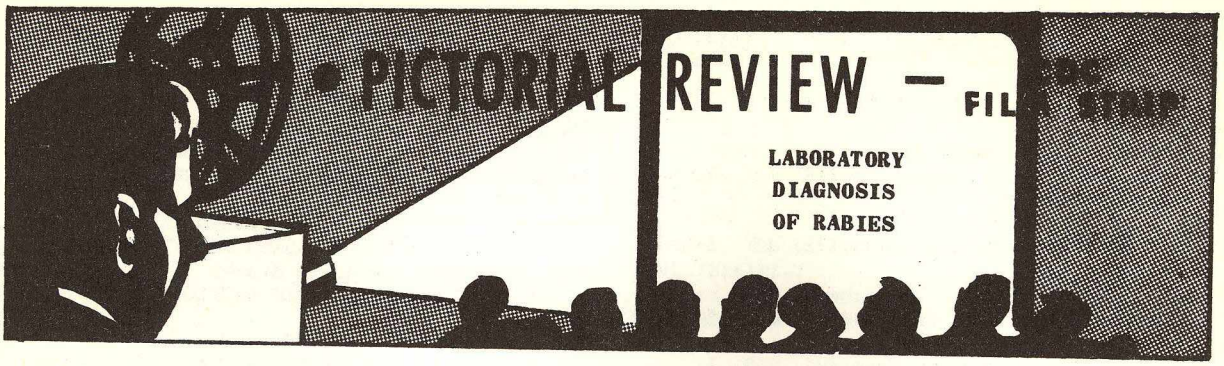
TITLE AND DESCRIPTION	PRODUCTION NUMBER
IDENTIFICATION OF FEMALE ANOPHELINES OF THE U. S. 35mm, sd, col, 21 min, 73 frames	5-019.0 1946
IDENTIFICATION OF MALARIA PARASITES IN THICK BLOOD FILMS 35mm, sd, col, 7 min, 50 frames	5-052.0 1948
IDENTIFICATION OF MALARIA PARASITES IN THIN BLOOD FILMS 35mm, sd, col, 17 min, 77 frames	5-051.0 1947
IDENTIFICATION OF SOME COMMON SUCKING LICE 35mm, sd, B&W, 9 min, 60 frames	5-097.0 1948
IDENTIFICATION OF U. S. GENERA OF ADULT FEMALE MOSQUITOES 35mm, sd, col, 15 min, 92 frames	5-015.0 1948
IDENTIFICATION OF U. S. GENERA OF MOSQUITO LARVAE 35mm, sd, col, 18 min, 103 frames	5-042.0 1947
IN SELF DEFENSE 35mm, sd, col, 14 min, 68 frames (Cartoon depicting individual measures against Anopheles mosquitoes. Sequel to "Criminal at Large")	5-016.0 1946
LABORATORY DIAGNOSIS OF RABIES 35mm, sd, B&W, 8 min, 53 frames	5-105.0 1948
LIFE CYCLE OF THE MALARIA PARASITE 35mm, sd, col, 13 min, 93 frames	5-030.0 1948
MALARIA 35mm, sd, B&W, 13 min, 101 frames	5-046.0 1945
MALARIA—HOW TO STOP IT 35mm, si, B&W, 27 frames	5-088.0 1947
MIXING OF DDT EMULSIONS 35mm, sd, B&W, 12 min, 77 frames	5-012.0 1945
MIXING OF DDT EMULSIONS -- QUIZ 35mm, si, B&W, 23 frames (Described in catalog sheet 5-012.0)	5-009.0 1945
MOSQUITO INSPECTION AND CONTROL 35mm, si, col, 83 frames	5-076.0 1946
PERMANENT DITCH LINING 35mm, sd, col, 15 min, 107 frames	5-034.0 1945
POWER SPRAYING WITH DDT, ED. II 35mm, sd, col, 14 min, 95 frames	5-002.1 1945
POWER SPRAYING WITH DDT, QUIZ 35mm, si, B&W, 26 frames (Described in catalog sheet 5-002.1)	5-008.0 1945
PREPARING BLOOD FILMS FOR MICROSCOPICAL EXAMINATION 35mm, sd, col, 11 min, 66 frames	5-071.0 1947
THE PRODUCTION AND PROCESSING OF OYSTERS 35mm, sd, B&W, 9 min, 90 frames	5-098.0 1948
RAT ERADICATION MEASURES ON RATPROOFING PROJECTS 35mm, sd, B&W, 12 min, 78 frames	5-068.0 1947
RATPROOFING OF EXISTING BUILDINGS 35mm, sd, B&W, 14 min, 80 frames	5-067.0 1947
RECOGNITION OF RAT SIGNS FOR DDT DUSTING 35mm, sd, B&W, 11 min, 70 frames	5-027.0 1946
SAFE PRACTICES IN HANDLING DDT 35mm, sd, B&W, 5 min, 37 frames	5-005.0 1945
SAFE PRACTICES IN HANDLING DDT, QUIZ 35mm, si, B&W, 13 frames (Described in catalog sheet 5-005.0)	5-010.0 1945
SANITARY DESIGN IN DRINKING FOUNTAINS 35mm, si, B&W, 52 frames	5.081.0 1947
SCHISTOSOMIASIS, ED. I 35mm, sd, col, 12 min, 80 frames	5-006.0 1945
SCHISTOSOMIASIS, ED. II 35mm, sd, col, 16 min, 102 frames	5-006.1 1945
SCHISTOSOMIASIS, LABORATORY DIAGNOSIS OF 35mm, sd, col, 16 min, 67 frames	5-041.0 1946
SPRAYTIME 35mm, sd, B&W, 13 min, 83 frames (Malaria mosquito eradication by residual spraying with DDT)	5-028.0 1945
SPREAD AND PREVENTION OF TRICHINOSIS 35mm, sd, B&W, 12 min, 67 frames (Professional level)	5-090.0 1948
STAINING BLOOD FILMS FOR MALARIA PARASITE EXAMINATION 35mm, sd, col, 14 min, 90 frames	5-072.0 1947
UNDER CONTROL 35mm, sd, col, 16 min, 91 frames (The story of malaria control around man-made lakes)	5-039.0 1946

KEY TO SYMBOLS

mm = millimeters sd = sound col = color
B&W = black and white si = silent min = minutes
4-000 series production numbers indicate motion pictures
5-000 series production numbers indicate filmstrips
*Film Shorts or Units —**Sound-on-film-strips (see footnote)
(1944-1948 indicates release date)

For additional information about the foregoing pictorial releases, write:

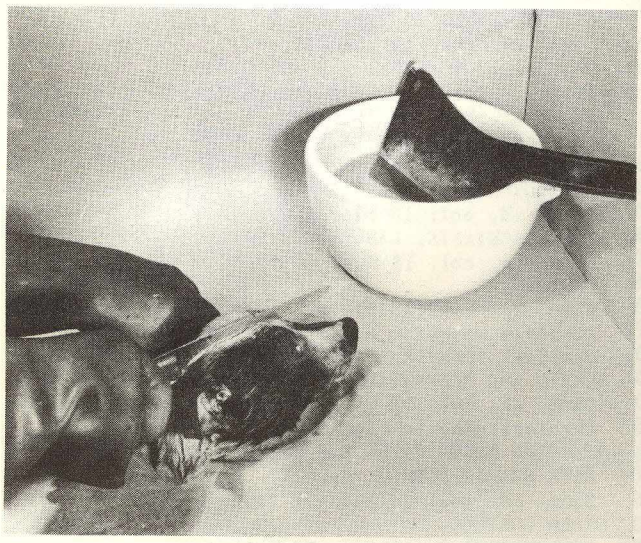
Production Division
Utilization Branch
605 Volunteer Building
Atlanta 3, Ga.



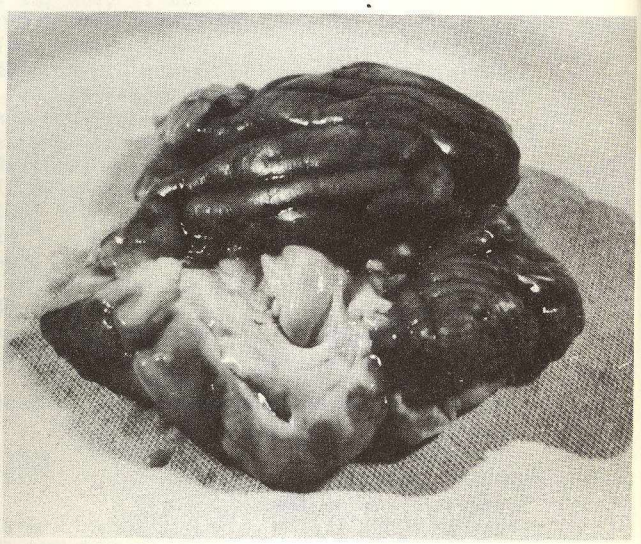
Production Number: 5-105.0
35mm Sound Filmstrip

Photography: Black and White
Running Time: 8 Minutes

Length: 53 Frames
Released: 1948



1. First, the dog's brain must be removed. Rubber gloves are worn as a precautionary measure.



2. Ammon's horn or hippocampus is the glistening white cylindrical body in the picture. This portion of the brain may contain Negri bodies which determine the laboratory diagnosis of rabies.

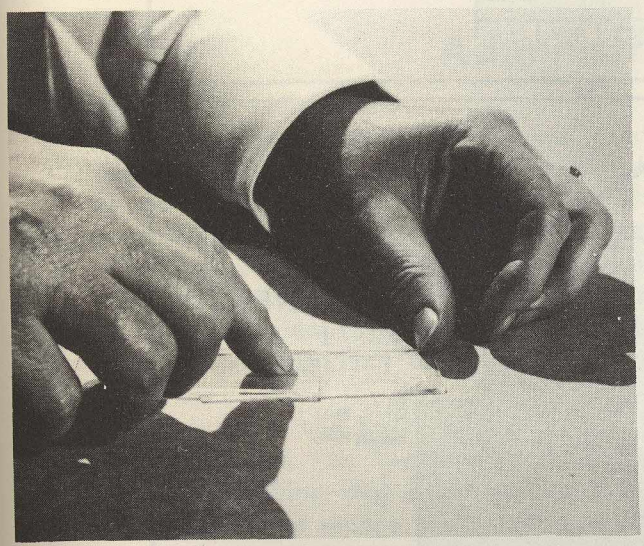
5. Both the smear and the impression are stained in Sellers' stain.

6. The stained slides are examined under the microscope at low power to locate the large nerve cells.

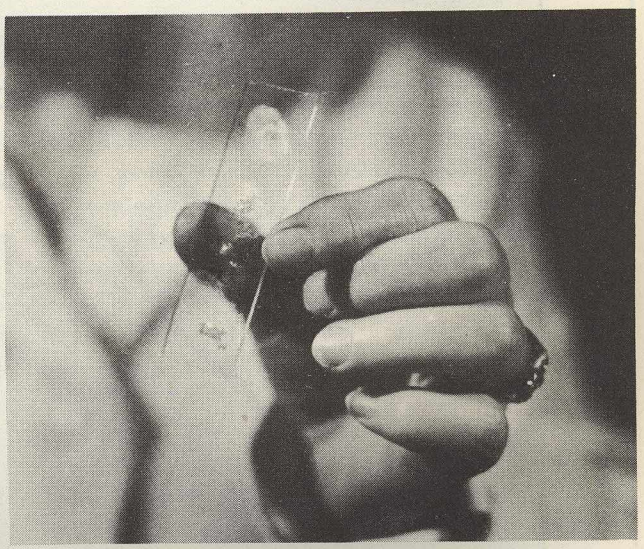
This 53-frame sound filmstrip released by CDC Production Division should aid in standardizing the best operational procedures for all laboratory technicians who diagnose rabies. It depicts the laboratory diagnosis of rabies as practiced by leading authorities in the field and hence should aid in training medical and veterinarian students in these technics.

To obtain this filmstrip, address request to:
Production Division
Utilization Branch
605 Volunteer Building
Atlanta, Ga.

Because the cherry red or magenta color of Negri bodies is vital to their identification, 2x2-inch color slides of: (1) exposed Ammon's horn of a dog's brain, (2) stained smear and impression slides, and (3) photomicrographs of the Negri bodies themselves will accompany the filmstrip.

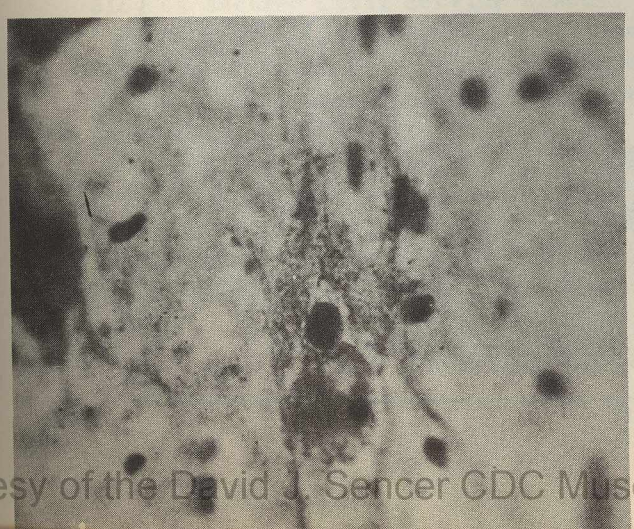


3. A *smear* is made from the cut surface of Ammon's horn in the first method of diagnosis.



4. In the second method an *impression* is taken from the cut surface of Ammon's horn.

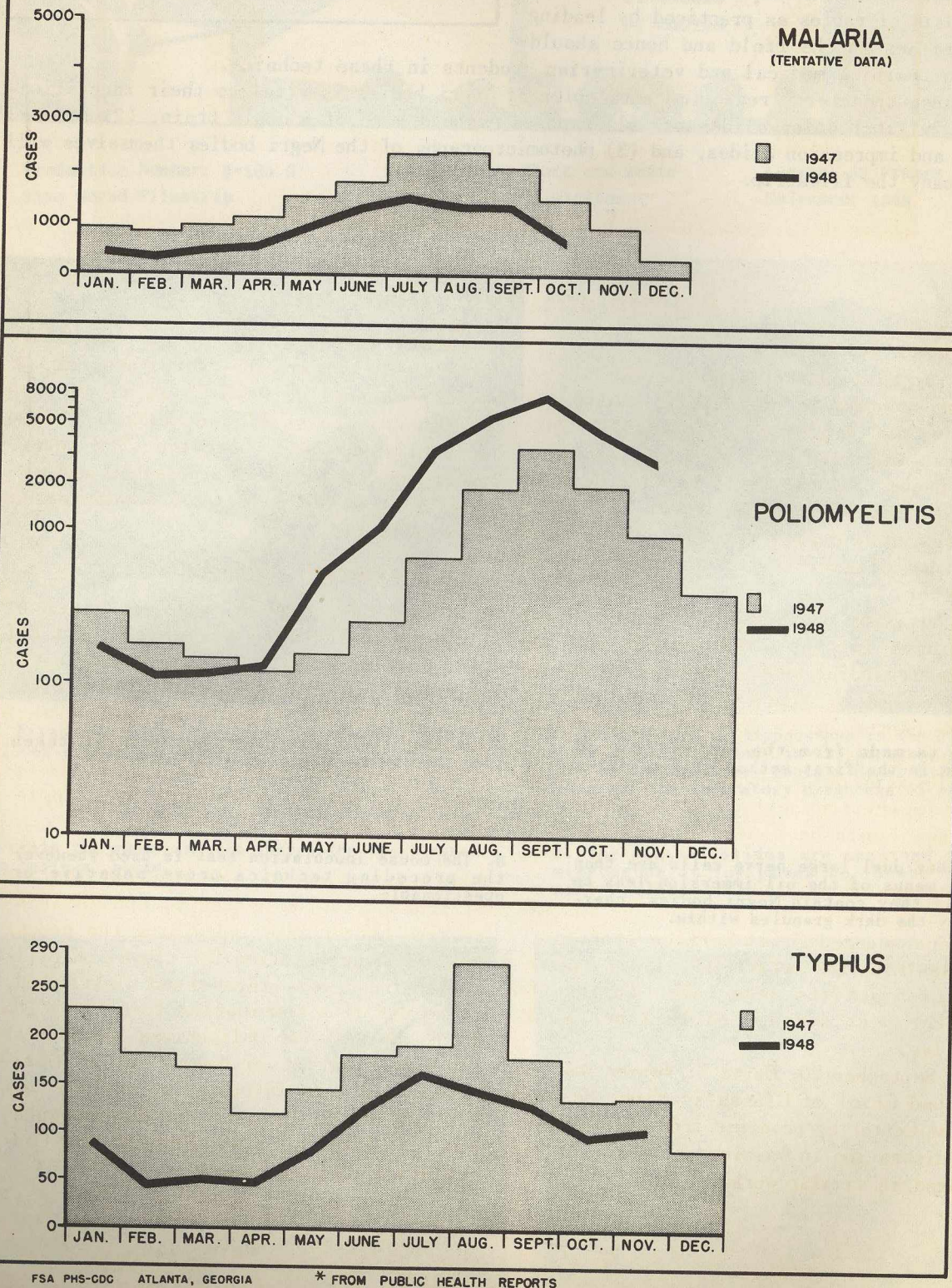
7. These individual large nerve cells are then examined by means of the oil immersion lens to determine if they contain Negri bodies, characterized by the dark granules within.



8. The mouse inoculation test is used whenever the preceding technics prove negative or questionable.

MORBIDITY TOTALS FOR THE UNITED STATES *
MALARIA, POLIOMYELITIS, TYPHUS

1947 - COMPLETE 1948 - AS REPORTED



FSA PHS-CDC ATLANTA, GEORGIA * FROM PUBLIC HEALTH REPORTS

Administrative Division

PERSONNEL ACTIVITIES

During this quarter emphasis was placed on the securing of competitive status for as many CDC employees as possible. This program was furthered by three methods:

1. Requesting the Civil Service Commission to certify to the Center the names of presently employed personnel who had attained eligibility on a Civil Service Register.

2. Advising the Board of Civil Service Examiners for the Communicable Disease Center regarding what examinations should be announced to secure the maximum benefit to the Center and by preparing examination announcements for the Board's use.

3. Reassigning personnel, in conjunction with supervisory officials, so that advantage could be taken of certificates bearing the names of employees who were not occupying appropriate positions.

As a result of this program, 99 CDC employees secured Civil Service status.

CLASSIFICATION ACTIVITIES. 1,234 classification actions were taken during the quarter -- an average of 19.2 per working day.

On September 20, David F. Weaver was appointed Chief of Classification. He came to the Center by transfer from the Veterans Administration in Washington, where he had engaged in similar work.

RECRUITMENT PROGRAM. Intensive effort was directed toward the recruitment of the type personnel with which it is desired permanently to staff the Center. Toward accomplishing this objective, 500 interviews were conducted with possible appointees, from which number 71 appointments were effected.

FISCAL BRANCH

During the quarter, various types of budgetary data were assembled, and the 1950 "Green Sheets," which included estimates of expenditures for all the activities of CDC for fiscal year 1950, were prepared and submitted to the Central Office budget committee, along with written justifications for the estimates and supplementary data.

Supplement No. 1 to Administration Letter 104, concerning the preparation and use of Transportation Requests, and Administrative Letter 122, explaining the proper mode of transportation for travel on official business, were prepared and distributed.

The use of a combination form, Form PHS 00.98, Request for Obligations and Request for Cancellation or Amendment of Obligation, has been initiated to replace Form No. CDC 00.25, Request for Encumbrance, and MCWA Form No. 1048, Request for Cancellation of Encumbrance.

A sight audit on payrolls was performed again by representatives of the General Accounting Office, and no exceptions were reported by the auditors. This audit was completed July 27, 1948.

SERVICE BRANCH

Of the many jobs done by Service section those considered most complex were a map of the Osceola Reservoir Area, map of the United States and possessions, showing locations of all Public Health Service Stations, and an entomological key of the Principal Families Diptera.

AUTOMOBILE ACCIDENTS

Administrative Letter 116 in connection with institution of legal proceedings against the drivers of Government vehicles involved in accidents, and Administrative Letter 118 dealing with the provisions of General Circular 5 "Claims and Suits Against or in Behalf of the United States" were distributed to field and headquarters personnel during the quarter.

DISTRICT CDC ACTIVITIES

CDC activities in Puerto Rico were transferred to the jurisdiction of the District 4 Office of the Public Health Service in New Orleans when the District 6 Office in San Juan was abolished in July. In this connection the Chief of the Administrative Division, in company with the Executive Officer, visited Puerto Rico in September. Certain administrative functions were transferred to the Communicable Disease Center.

Engineering Division

GENERAL ACTIVITIES

The Special Services Branch of the Division was activated during the quarter. This Branch will provide consultant service on special activities not directly covered by the established programs of the Division. Such activities as presently are under way include preparation of a disaster aid manual and lectures for engineering schools on general principles of sanitation as applied to industrial studies and stream pollution studies. Sanitary Engineer Director Frank R. Shaw, who was transferred from Washington headquarters, is assigned to the Branch as Special Consultant.

Engineer (R) John H. Bright has been transferred from the Impounded Water Branch to the Malaria Control Branch, replacing James H. Crawford who is attending Georgia Tech for graduate training. Scientist (R) Carl O. Mohr was transferred during the quarter from the Entomology Division to replace Sanitary Engineer John S. Wiley as Officer in Charge of the Typhus Control Branch when Mr. Wiley's transfer to the Cincinnati Station becomes effective on November 8. William W. Moore has been placed in charge of the Equipment and Construction Branch, replacing S. A. Sanitary Engineer (R) Richard P. Lonergan, who is attending the University of California, Berkeley, for graduate training.

OTHER ASSIGNMENTS. Assignments to fly control projects during the quarter were as follows: Phoenix, Ariz., S. A. Engineer (R) Domineco Capone and Entomologist Russell E. Siverley; Topeka, Kans., Engineer (R) Arthur H. Johnson and Entomologist Joseph G. McWilliams; Troy, N. Y., J. A. Sanitarian (R) Robert D. Hall; Muskegon, Mich., J. A. Sanitarian (R) C. M. McElmore; and Charleston, W. Va., Entomologist E. V. Welch.

Other personnel changes include the transfer of Engineer George L. Carley, Jr., from the District 4 Office to the Division Typhus Branch and the transfer of Ray D. Allen from the Entomology Division waterhyacinth project in Mulberry, Fla., to Engineering Division disaster aid activities in Atlanta. J. A. Sanitary Engineer George W. Burke, Jr., and J. A. Sanitarian (R) Carl S. Yosick were commissioned and

assigned to the Impounded Water Branch. J. A. Sanitary Engineer John V. Miner, Jr., was commissioned, and is attending Georgia Tech with part-time service in the Malaria Control Branch. Assistant Engineer (R) H. H. Aygarn entered on terminal leave during the quarter.

C. Heard Field was transferred from the North Carolina CDC malaria control program to the Oklahoma CDC program to replace Engineer (R) Clarence Feldhake, who is being transferred by the Washington Office to duty with the Indian Service in New Mexico; William C. Hamblett and J. A. Sanitary Engineer (R) J. O. Fitzpatrick were assigned to Region IX and Denver City-County Health Department, respectively, on plague activities; and W. H. Slaughter entered on duty in Atlanta and was assigned to the plague activities project in Salt Lake City, Utah.

MALARIA CONTROL

A review of the basis for preapproving counties for residual spraying operations was made by the Malaria Control Branch and the Epidemiology Division during the quarter.

Under the old formula, all counties having a malaria morbidity rate of 5 or more per 100,000 population during the period 1938-42 were approved for operations. Subsequent statistical review indicated that 73 of the counties approved for operations under this formula had no reported deaths from malaria during the period 1943-46 and in 20 counties the reported malaria death rate for the same period was less than 1 per 100,000 population. It was apparent, therefore, that a revision of the basis of preapproval had become necessary. The new basis for preapproval, as agreed upon, is as follows:

(1) Approval of all counties having a death rate of 5 or more per 100,000 population during the period 1938-42, inclusive, and, in addition, a rate of 1 or more malaria deaths per 100,000 population during the 4-year period 1943-46, and

(2) Approval of all counties having an average annual death rate of 4 or more per 100,000 population during the period 1943-46.

In addition, States will be encouraged to spray all rural homes within 1 mile of the residence of a malaria case which has been confirmed by a positive blood smear. A mimeographed list of the counties so approved was prepared for distribution.

Under the new formula, a total of 294 counties in the 13 malarious states are eligible for operation; 369 counties were included in the previous list. Application of the new formula in the distribution of Federal funds and in operational areas will become effective in the fiscal year 1950.

Fly Control. Numerous complaints were received from the field during the quarter regarding the apparent ineffectiveness of the DDT residual spray in controlling flies. As a result of these complaints, field testing of substitute insecticides was started in Alabama, Arkansas, and Mississippi.

Testing and evaluation procedures were devised by the Technical Development Division and involve the use of a variety of formulations, application rates, and application techniques for methoxychlor, benzenehexachloride, toxaphene, chlordan, and DDD. Test areas in the States were chosen in those areas were DDT seemingly had failed to control flies. Evaluation work in connection with the field tests has not been completed.

Since many of the difficulties experienced during the 1948 season appear to have resulted from the use of ready-mixed DDT concentrate purchased from commercial manufacturers, the States for the most part have indicated a preference for mixing their own concentrate during the 1949 season. The constituent chemicals agreed upon for use in formulating concentrate during 1949 consist of industrial grade xylene as the solvent for technical grade DDT, and Triton as the emulsifying agent.

With the passage of the Selective Service Act of 1948, the Secretary of Defense requested the assistance of the Public Health Service, through the Federal Security Administrator, in maintaining suitable measures of health and sanitation in extra-

CONSTRUCTION

During the quarter the Construction Unit received 143 work orders and completed 119 of this number. These work orders included minor repair and maintenance jobs for various divisions, as well as major construction work on the Silvey Building, the Rialto Building, the Baptist Building, and buildings occupied by the Laboratory and Production Divisions at Lawson.

IMPOUNDED WATER STUDIES

In September, an inspection of the alligatorweed *(Alternanthera philoxeroides)* infestation of the Santee Cooper Reservoir in South Carolina was undertaken. It was found that approximately 18,000 acres of the reservoir area are infested with this plant, including about 500 acres in the diversion canal and the Pinopolis Reservoir. Control measures, including airplane application of 2,4-D in areas inaccessible by boat, have been initiated. It was not recommended that eradication of alligatorweed in the area be undertaken since eradication does not appear economically justifiable. However, control measures should be practiced in order to keep the infestation from spreading.

Entomology Division

HEADQUARTERS OFFICE

During July H. D. Pratt and T. E. McNeel investigated a serious eye-gnat outbreak in South Georgia and advised local authorities as to remedial measures. At present no economically feasible methods for community-wide control of these annoying pests are known.

G. H. Bradley attended the Eighth International Congress of Entomology in Stockholm, Sweden, in August. There he presented a paper on the "Insect Control Activities of the Communicable Disease Center."

As part of the over-all Missouri River Basin development program, a project to study and determine mosquito and associated disease problems has been established with headquarters at Kansas City, Mo. John A. Rowe has been designated as CDC representative in charge of this activity.

MISSOURI RIVER BASIN PROJECT

Preliminary steps toward activating the mosquito and encephalitis investigations have involved (A) clarification of objectives, (B) organizational planning of budget, (C) recruitment and certification of personnel, (D) development of field unit activities, and (E) the securing of supplies and equipment.

The basic objectives of this project are as follows:

1. To determine the kinds and numbers of mosquitoes which are, or are likely to be, produced on each impoundment.
2. To determine the significance of such mosquito populations in the transmission of mosquito-borne diseases and on the utilization of reservoirs for recreation.
3. To determine those effective and practical actions which may be taken before, during, and following impoundment which will eliminate, minimize, or control such mosquito populations.
4. To determine the specific conditions which produce mosquito populations in irrigated areas.
5. To determine the extent to which these conditions directly result from irrigation systems and/or practices.
6. To determine those actions which will minimize mosquito production when incorporated into the planning, construction, or operation of existing or future irrigation systems.
7. To determine effective and economical measures of applied control on irrigated areas.
8. To determine the kinds and numbers of mosquitoes which presently occur on typical "dry land" areas which will become irrigated under the Basin Development Plan.

9. To determine or verify principal features of the bionomics of mosquito species inhabiting the Basin.
10. To determine the incidence and distribution of the strains of mosquito-borne encephalitis within the Basin.
11. To complete field activities required to secure such specimen material for laboratory testing as may be indicated for clarification of the epidemiology of encephalitis in the Basin area.
12. In the event of an outbreak of encephalitis or other insect-borne diseases, project personnel may be utilized promptly to undertake such control measures as may be advisable.

ECTOPARASITE-BORNE DISEASE BRANCH

Typhus Activities. Tabulations have been made covering the first half of calendar year 1948 to secure information on the percentage of rats infested with non-sticktight fleas from dusted and non-dusted areas and where 5-percent and 10-percent DDT dusting has been carried out. Complete results will not be available until data for the third quarter of CY-1948 have been secured. Data also are being obtained on the percentage of rats positive for typhus, as well as the percentage of rats infested with all ectoparasites except the non-sticktight fleas, together with the mean number of ectoparasites per rat.

Plague Activities. Plague investigations at Salt Lake City, Utah, were initiated on July 1 by transfer of Fred Harmstrom from District No. 8 to the investigations unit. Darrell R. Maddock, entomologist, and Roy J. Myklebust, wildlife research specialist, reported for duty to complete a three-man team. Work to date has included the capture and combing for ectoparasites of 79 rock squirrels *(Citellus variegatus)*, 80 Norway rats, 87 meadowmice *(Microtus)*, 146 white-footed mice *(Peromyscus)*, 26 housemice, and 50 other animals which have been caught and combed. Since the fleas of domestic rats are of particular concern and indicative of the amount of danger from plague, a number of these rats will be caught each month and combed. Meadowmice, deermice, and other species are being investigated to determine whether they, or their fleas, may serve as either primary or secondary plague reservoirs. Maps of infested areas and visual observations on abundance of rodent species are being made.

At Brownfield, Texas, studies are in progress relative to concentrations of each of the rodent species present in various kinds of habitats, and on the relationship of size of uncultivated areas to maintenance of plague. It appears that most small sylvan rodent populations declined prior to 1946 and have not regained their numbers. A prairie dog, found dead in Gaines County on June 28, 1948, was confirmed in August as plague-infected. Plague previously had been found in woodrats *(Neotoma)* in this county in October 1947 and April 1948.

MALARIA INVESTIGATIONS BRANCH

A station for malaria investigations was activated at Helena (Phillips County), Ark. during the quarter. With the establishment of this station, observations now are under way in the three principal types of malarious areas in the United States. Pending official transfer, Wilbur V. Henry was detailed by the State on August 16 to act as entomologist in charge of the station.

ENCEPHALITIS INVESTIGATIONS -- CALIFORNIA

Cooperative investigations with the Hooper Foundation into the epidemiology of the arthropod-borne virus encephalitides in Kern County, Calif., were continued during the period July 1 to September 30, 1948, as outlined in previous reports.

Although there appeared to be a relatively large number of cases of central nervous system disorders reported from the Kern General Hospital, laboratory tests have revealed no cases caused by the encephalitic viruses with which we are concerned. Four probable equine cases occurred during the summer months, but were not laboratory confirmed.

Only four strains of virus were isolated from arthropods. In general, the mosquito population in the study area appeared to be smaller than in previous years. We are not yet in a position to state that there is any correlation between the apparent reduction in mosquito population and the lack of human or equine cases of encephalitis, since a reduction in the number of cases has occurred in other years without an apparent reduction in the number of mosquitoes.

Incidence of Virus Infection. A total of 53,332 mites was collected from the nests of wild birds and frozen for virus studies. Identification of representative samples taken from the same nests is still in progress and will be reported later.

Avian Studies. Nesting of most species of birds under observation terminated in July. However, the house finch and the English sparrow continued nesting into August, and the mourning dove into September. During the nesting season, 297 nests of 37 species were recorded and observed.

FLY-BORNE DISEASE BRANCH

During the quarter, five cities were selected as sites for fly control operations: District I, Troy, N. Y.; District II, Charleston, W. Va.; District III, Muskegon, Mich.; District V, Phoenix, Ariz.; District VII, Topeka, Kans. Operations, beginning in July 1948, are to continue for 5 years. Work for the 1948 season is limited to the making of surveys to determine the species of flies present and their relative abundance in these cities as well as principal breeding foci.

DYSENTERY CONTROL PROJECT THOMASVILLE, GA.

Pharr, Tex., Station. Samples of flies from the following types of areas were sent to Savannah for testing as to the DDT tolerance exhibited. Conclusions from preliminary tests were as follows:

(1) In an area where no DDT has been used, tolerance of flies to DDT was at a very low level.

(2) In an area of large-scale residual treatment, a high degree of tolerance to DDT was exhibited.

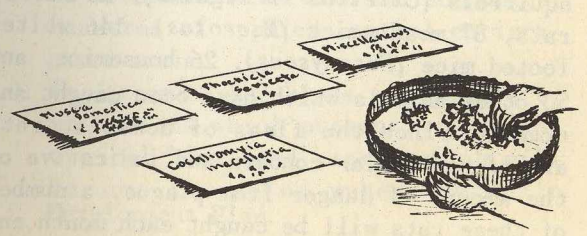
(3) In an area where DDT has been used, consisting of heavy residual applications and space treatments over a period in excess of 18 months, but in which DDT had not been so used during the past 8 months, the tolerance to DDT was at a medium level. Because of the development of this tolerance to DDT, a field test of Chlordan space spraying was inaugurated late in the quarter from which data are not yet available.

The *Hippelates* studies being carried on in this area were nearly at a standstill throughout the quarter due to the pressure of other activities.

Albuquerque, N. Mex., Station. In this area considerable difficulty was encountered in eliminating scattered high counts of adult flies, although the total fly populations in treated areas were significantly less when compared with similar untreated areas.

A comprehensive test of machine-versus-hand methods of applying DDT residuals was made. Hand methods were found more efficient in all respects when proper organization of the crews was accomplished. Treatment of areas was sharply curtailed late in the quarter concurrently with a reduction in force.

Thomasville, Ga., Station. Activities in this area have been primarily concerned with surveys to determine the principal sources of flies. In addition, facilities are being prepared for an intensive research program on fly-borne disease transmission during the coming year.



Epidemiology Division

ENCEPHALITIS INVESTIGATIONS

Alabama. Investigations of possible Newcastle disease in man were made at Decatur, Pell City, Birmingham, and Livingston, Ala. The only positive findings to date were at Livingston, in the midwestern part of the State. This outbreak involved about 150 cases, and was traced to one individual who had had contact with the June outbreak of Newcastle disease in Enterprise, which is in the southeastern part of Alabama. All tests completed on the bloods from the Livingston outbreak showed a diagnostic titre for Newcastle disease.

Tennessee. Approximately 20 new cases of encephalitis and encephalitis-like diseases were investigated during June, July, and August, and new blood tests were obtained on the cases investigated in Tennessee in 1947. Of the new cases, approximately 65 percent had a very severe encephalitis. There were two deaths in this group. The milder cases of encephalitis, which fall into the category of the Newcastle virus, were doubly hard to distinguish this year due to a moderately severe outbreak of poliomyelitis which developed in Davidson County in August. All the ectoparasite collections made in Tennessee that have thus far been examined run approximately 60 percent negative. Incomplete laboratory results on the blood specimens indicate that a considerable number of the cases are due to the Newcastle virus.

Louisiana. During July, approximately 40 wild bird blood specimens were collected from the 1947 equine epidemic area and shipped to the Virus Laboratory. These blood specimens have not yet been completely analyzed. However, one blood neutralized the eastern equine virus. There are many epidemiological reasons to suspect that this area comprises the reservoir of equine encephalomyelitis for this part of Louisiana, as the epidemics start in the same area year after year. Ectoparasite collections were made and approximately 60 percent of the 5,000 mosquitoes collected have been run and are negative for the eastern equine virus.

Georgia. In response to a request by the Georgia State Health Department, an investigation unit was sent to Burke County, Ga., on August 16 to investigate the cases of equine encephalomyelitis occurring in this area. Light trap and hand mosquito collections were made from Munnilin and Girard in Burke County and Birdville in Jenkins County. These sites represented the approximate location of about 90 percent of the 25 horse cases that had occurred. The eastern equine virus was isolated from a horse brain sent in by a Waynesboro, Ga., veterinarian, so that the identity of the outbreak already was clearly established. The area had had an extremely dry summer with unusually low mosquito concentrations. Thus, it is difficult to explain from an epidemiological standpoint why an epizootic should occur. The residual spray program with DDT was being performed, which may be responsible for the absence of the disease in humans and stabled animals. Little success was achieved by light trap collections from these areas. However, hand collections met with moderate success. A similar situation was found in Mitchell and Brooks County, Ga., where cases had occurred and vector collections were made. With laboratory examination of the mosquitoes nearing completion, *Mansoma perturbans* has been found infected with eastern equine encephalomyelitis virus.

Missouri Valley Project. In a conference at Kansas City it was decided that two areas should be picked, one from the veterinary statistics on western equine encephalitis and another such as Garden City, Kans., where human encephalitis occurred independently of equine encephalitis. Entomological appraisals will be

made this year. Vector and host reservoir studies will be started next spring. Laboratory studies for the project will be performed by the Rocky Mountain Laboratory and that of Dr. Wenner, Epidemiological Consultant for the program.

Hamilton County (Tenn.) Outbreak. At the request of Tennessee and Hamilton County health officials, a trip was made to Chattanooga, Tenn., to review and take specimens from several unusual cases of encephalitis associated with severe paralysis. A total of six cases of the neurotropic virus disease, presumably of virus etiology, had occurred among members of a football team. The course of the disease consisted of an acute onset with pain and parasthesias in the lower extremities, stiff neck, and fever. Three of the patients had marked encephalitis symptomatology and three had a severe transverse myelitis, rapidly ascending in one case with involvement of the respiratory muscles and a fatal termination. One case had involvement of the right deltoid with no other paralysis but with coma for 7 days. The history of intimate contact among the students, the absence of a significant ectoparasite, and the absence of a common food intake suggest that this is a respiratory-borne illness, the etiology of which is obscure. Nasal washings, eye washings, throat washings, stools, and bloods were collected for study by the Virus Laboratory. All cases present considerable protection by neutralization test against the Newcastle disease virus. Until a rise in titre of this protection can be obtained or the virus itself be isolated from some of the other specimens, a definite diagnosis of Newcastle disease cannot be made. Two of the patients presented a mild illness which closely resembled the other cases of Newcastle disease seen this summer. However, the marked muscular paralysis and marked sensory involvement are quite different from anything heretofore seen with this virus. One patient was diagnosed at Warm Springs as having encephalitis, with transverse myelitis; poliomyelitis was ruled out on the basis of clinical course and physical findings. The clinical laboratory findings in these cases were not remarkable, being those of an acute febrile illness, with the exception of the spinal fluid findings which uniformly presented a pleocytosis of the spinal fluid, with sterile cultures and no organisms found on smear. However, in the fatal case there is some question as to whether there was a pyogenic central nervous system infection occurring as a secondary invader in the terminal phases of his illness. Attempts to secure post mortem material for virus studies were unsuccessful.

Laboratory Division

The Bacteriology Branch, located at Lawson Veterans Administration Hospital, activated two sections upon the arrival of new staff members:

Dr. Martin Frobisher, Jr., previously Associate Professor of Bacteriology at Johns Hopkins University, is in charge of the Bacteriology Branch. Associated with him in the Diphtheria Laboratory is Dr. Elizabeth Parsons, formerly of the Johns Hopkins School of Hygiene and Public Health.

Dr. P. R. Edwards, previously at the University of Kentucky, is in charge of the Enteric Bacteriology Section, where he continues referral identification service for the enteric pathogens. Dr. W. E. Ewing, formerly at Cornell University, is in charge of the *Shigella* identification service in this section.

Dr. R. E. Kissling was assigned for temporary duty to the Pathology Department of the National Institutes of Health from the Virus Section in Montgomery, Ala.

Dr. H. B. Stillerman has joined the staff of the CDC Clinic on a part-time basis to supplement the hours when a physician is available at the Clinic.

Dr. M. Cummings gave a paper, "Recent Advances in Culture Media for Tubercle Bacilli," at the International Union against Tuberculosis at Paris, France, September 27–October 1.

Methodology Research

PROJECTS COMPLETED

Parasitology. The use of polyvinyl alcohol-fixation techniques in the diagnosis of intestinal parasites has been extended to the development of a simple bulk-fixation technique. A small amount of feces is stirred into a vial of PVA fixative; this vial may be used at once, transported, or stored for some time, then a few drops of the mixture smeared and dried on a slide and stained in the conventional manner. Excellent diagnostic preparations of trophozoites have been obtained with this technique.

A detergent added to Giemsa stain prevents flotation of parasites to other slides when bulk-stained. The inclusion of Triton X-30 in the Giemsa stain for other than malarial parasites has had no ill effects; rather, it results in excellently stained blood cells, hemoflagellates, and microfilaria.

Virus. The components of the suspending solution usually determine the stability and viability of virus when it is diluted for laboratory studies. To determine the best diluent to use with lymphocytic choriomeningitis virus, the following were tried: distilled water, saline nutrient broth, dextrose saline, buffered saline, buffered saline with glycine, and buffered saline-glycine-normal rabbit serum. The last combination yielded the most potent virus suspension.

Subcutaneous injective of eastern equine encephalomyelitis virus into two horses resulted in demonstrable virus in peripheral blood for not longer than 60 hours after a brief incubation period; the infections developed into clinical disease.

Insectary-maintained *Culex quinquifasciatus* were fed on chickens infected with eastern equine encephalomyelitis. Subsequently, although a number of lots of mosquitoes failed to show virus, virus was demonstrated in the mosquitoes from this colony when tested on the 4th, 5th, 6th, 7th, and 8th days after they fed on the chickens.

Bacteriology. Tests under the conditions of work at the Lawson laboratories show complement from the laboratory guinea pigs to be more active than commercial lyophilized complement.

Bacterial contamination of referral diagnosis serum specimens results in spoilage for serological tests, thus making it necessary to request repeat specimens and often resulting in loss of the early specimen essential for demonstration of rising titre. It has been shown that "Merthiolate" is active as a serum preservative over a wide range of concentration without any destructive effect on typhus antibody at 6°C., room temperature, and 37°C.

Rabbits given repeated series of identical immunizing antigens for host preference serology were shown to yield sera of poor specificity. At present, therefore, rabbits are given only one series of immunizations with a single booster injection if they show low titre response.

Immune sera for host preference testing should be dehydrated if they are to be stored and used during a long time. Sera not so prepared show a continuing drop in potency.

Investigations have been completed and reports submitted for publications on: methods for closure of tuberculosis culture tubes; toxicity of digesting agents to tubercle bacilli; comparison of efficiency for demonstration of tubercle bacilli by

selection and by concentration; the effect of different methods of coagulation of culture media on bacterial growth; a comparison of direct microscopical tuberculosis diagnosis between two laboratories; and the use of mice in the laboratory diagnosis of tuberculosis.

NEW PROJECTS

Bacteriology. Thirteen special endotoxic antibacterial antigens were prepared for immunization and complement fixation in connection with research on types of *C. diphtheriae*. Six protocols for studies of type-specific immunity involving 245 guinea pigs were begun.

Experiments were begun on the antigenic structures of the protein fractions of the definite types of *C. diphtheriae*.

Cultures of streptococci for use in the Streptococcus Typing Service have been received from Dr. Lancefield; sera for 28 of the 41 types of Group A. Streptococci and for 4 other groups have been received in quantities sufficient to justify shipment of sets of typing sera.

Cultures have been received and positive test sera have been collected to initiate work in the Brucellosis Laboratory. Production of Bureau of Animal Industry-type antigen has begun.

Identification of *Enterobacteriaceae*, particularly *Shigella* and *Salmonella*, is now available in the Enteric Bacteriology Section at Lawson. Bacteriophage typing of typhoid bacilli is available also.

In the Tuberculosis Section, studies have been initiated on methods for preservation of tubercle bacilli over a period of time and with attention to problems of transportation, the relative efficiency of centrifugation procedures in concentration of tubercle bacilli, and identification of the growth-inhibiting acids released from autoclaved media.

The Mycology Section has begun a survey to attempt the demonstration of *Histoplasma capsulatum* in the soil and in rodents from Tennessee.

State Services

SURVEYS

Program reviews and laboratory surveys were completed for the following city and State public health laboratories:

Denver	Oregon
Arizona	Utah
Colorado	Vermont
Idaho	Virginia

These surveys include complete itemized anaylsis of technical procedures and administrative practice. Comprehensive reports of these surveys with recommendations for improvements, were sent to the Regional Medical Director and to the particular State or city health officer.

CONSULTATION

One technician was sent to North Carolina to evaluate relative efficiencies of direct and concentrated smears for the diagnosis of tuberculosis.

Two technicians were sent to Seattle, Wash., to furnish bacteriological aid in conjunction with a mass X-ray survey.

Two parasitologists presented a week of instruction in the diagnosis of blood parasites to medical technicians of Miami, Fla., and the surrounding area. Seventy-five persons attended the six evening sessions of lectures and laboratory instruction.

TRAINING

The Program for Training Courses in the Laboratory Diagnosis of Communicable Diseases for the calendar year 1949 has been prepared for distribution. As a part of recruitment, copies of this program and application blanks will be sent to all State health officers and to Regional Medical Directors for redistribution.

EXTENSION SERVICE

During this quarter, 19,305 items were received by the various branches of the Laboratory Division from throughout the United States and from Alaska and the Caribbean area. These specimens were received from survey procedures of other agencies or as referral diagnosis problems.

Shipments totalling 2,039 items were sent to addresses in every State and in Alaska, Hawaii, Puerto Rico, Canada, and Germany.

The Extension Service monthly shipments of slides totalled 837 slide sets for the quarter which were sent to 290 laboratories. During this quarter, the slides contained specimens of: *Plasmodium malariae* and *P. vivax; E. histolytica, I. butschli, E. coli* and *Giardia lamblia* cysts; adult male and female specimens of *Necator americanus*.

Of some interest with reference to Evaluation Programs are the results of the special extension service for diagnostic laboratories in Mississippi, begun in June. Nineteen technicians each received 10 sets of specimens containing cysts of intestinal protozoa. Each technician submitted diagnoses, and for the whole series the (confidential) grades of the 19 technicians ranged from 18/100 to 97/100.

Four loan collections of parasitological materials were sent to Illinois, California, and Michigan. Special sets were sent to Michigan, Massachusetts, Missouri, Georgia, Rhode Island, and Florida.

Thirty-two standard-type reference strains of bacteria were sent to Georgia, Indiana, Washington, Maryland, Kansas, Pennsylvania, and Germany.

Referral Diagnosis

The following parasitological examinations were made for the laboratories and clinics listed below:

Name of Laboratory or Clinic	Fecal Specimens For Intestinal Parasites	Fecal Specimens For Culture Protozoa	Slides For Pinworms	Blood Films For Parasites	Arthropods For Identification
State or Local Laboratory	244	145	28	7*	1,895***
CDC Clinic	5			1**	
Totals	249	145	28	8	1,895

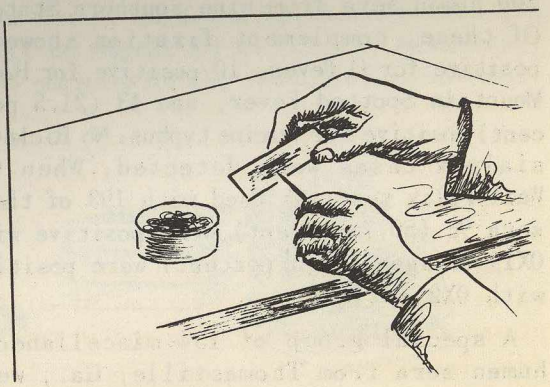
* 5 examined for malaria; 2 examined for filaria
** Examined for malaria
*** Includes 1,006 rat ectoparasites from a 5% DDT dust evaluation study at St. Augustine, Fla., and 782 wild rodent ectoparasites from Utah collection in connection with sylvatic plague studies.

During this quarter, the following blood smears from surveys were received for malaria diagnosis:

South Carolina Survey	3,079
Mississippi Survey	3,139
Arkansas Survey	50

A total of 6,394 smears were examined for malaria.

	NUMBER SLIDES	NUMBER POSITIVE
South Carolina Survey	5,894	0
Dominican Republic	500	30



TEST	RESULTS
84 specimens x Eastern Equine Encephalomyelitis	1 of 3 from Va. — Weakly Positive
42 specimens x Western Equine Encephalomyelitis	5 of 10 from S. Dak. — Positive
	1 of 2 from Colo. — Positive
47 specimens x St. Louis Virus	1 of 17 from Tenn. — Positive
	2 of 8 from S. Dak. — Weakly Positive
4 specimens x Lymphocytic Choriomeningitis	1 of 2 from Va. — Weakly Positive

The Virus and Rickettsial Branch, in response to requests for diagnostic aid, performed neutralization tests with human sera set up against the antigens named in the table shown above.

Neutralization tests with animal sera were set up against eastern equine encephalomyelitis (E.E.E.) virus and western equine encephalomyelitis (W.E.E.) virus. A single horse serum from Georgia protected against E.E.E. One of 15 bird sera from Louisiana protected against E.E.E., while none of 19 wild bird sera from Louisiana protected against W.E.E.

Virus isolation studies resulted in isolation of E. E. E. in brain from two of six Georgia horses. Poliomyelitis virus was isolated from five of six human fecal specimens from Cullman, Ala.

Eight lots of ticks were tested for rickettsiae by injection into guinea pigs. No gross symptoms developed and none of the animals developed complement-fixing antibodies for Rocky Mountain Spotted Fever.

Rickettsial serology laboratories tested 200 human sera from nine southern States. Of these, complement fixation showed 2 positive for Q fever, 10 positive for Rocky Mountain Spotted Fever, and 43 (21.5 percent) positive for murine typhus. No Rickettsialpox cases were detected. When the Weil-Felix test was used with 193 of these sera 98 (50.7 percent) were positive with OX19 antigen, 7 (3 percent) were positive with OX2 antigen.

A special group of 134 miscellaneous human sera from Thomasville, Ga., were tested against the four rickettsial antigens in the C-F test; 24 (18 percent) were positive for murine typhus.

Complement-fixation tests, using murine typhus antigen, were performed with 5,602 rat sera; 625 (11.1 percent) of the sera were positive.

During its first 3 months of operation, the Enteric Bacteriology Section received, for identification, 61 cultures from animal sources and 359 from humans. Of the 420, 220 were *Shigella*, 126 *Salmonella*, 60 paracolon, 7 *Proteus*, 4 *Aerobacter*, and 3 *Pseudomonas*. Fourteen of the *Salmonella* cultures were *S. typhi* and these were typed with bacteriophage.

Of particular interest was the recognition of a culture from a cloacal swab from a hen as *S. typhi* (type E_1). This is the first recorded instance of the isolation of the typhoid bacillus from animals in the United States, and the second report of its presence in fowls, it having been found upon one occasion in a chick in South Africa.

The Tuberculosis Section received, from within Georgia, 1,040 specimens for diagnosis; 72 cultures were sent from Arizona and Alaska for type determination, while 208 cultures from various sources were submitted for assay of streptomycin sensitivity.

The Mycology Section examined 147 cultures and specimens submitted for diagnosis. Fifteen pathogenic fungi were identified from this group: *Candida albicans* (6), *Trichophyton mentagrophytes* (5), *Geotrichum* sp. (2), *Aspergillus fumigatus* (1), and

one strain of *Phialophora verrucosa* from the U. S. Marine Hospital, New Orleans, La. This is the 7th isolation of *P. verrucosa* and the 5th from the United States (Missouri 2, Texas 1, Massachusetts 1, and Louisiana 1). The other two isolations were in Uruguay and Algeria.

The General Bacteriology Section received five cultures for determination during its first quarter of operation: *Nocardia* (Actinomycosis) 2, *M. mallei* (glanders) 1, tularemia 1, and "an acid-fast organism from a patient with leprosy". One strain of *Gaffkya tetragena* was received for penicillin sensitivity assay.

Library and Reports Division

Mr. Theodore G. Thress, Division Chief, submitted his resignation, to become effective October 1. It was announced that on October 1 this Division would become the Technical Reports Branch of the Administrative Division.

EDITORIAL BRANCH

During this quarter, three persons were added to the staff — Technical Editor Lloyd S. LaPrade, Technical Editor J. Elmo Greene, and Editorial Clerk Mrs. Dorothea Dickey.

Publications released by this Branch were "July-August-September CDC Bulletin"; the film guide, "The Production and Processing of Oysters"; and the "Film Catalog and Utilization Guide." Editorial and art work was completed on "The Bulletin of Field Training Programs."

Approximately 32 manuscripts by CDC personnel for publication in "outside" journals were reviewed and cleared by this Branch.

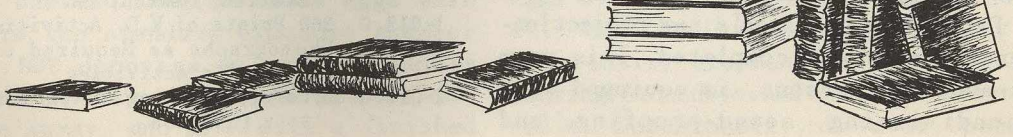
LIBRARY BRANCH

The Library continues to grow. This quarter a new catalogue cabinet was received, and the catalogue was expanded from its former crowded 12 trays to a more comfortable 24. That is the only place, however, where extra space was provided. The shelves are crowded even though the tops are being used. The Library received four double-spaced floor sections, which were filled immediately.

The second duplicate exchange list has been sent to the Medical Library Association, but allotments from it have not yet been received. It is through this Association that the Library has received many valuable journals with which to build up its files. Last year, the Library procured 4,726 pieces. They all are free, except for the carrying charges which the Library pays.

During the quarter the Library prepared a list of periodical holdings. Copies have been sent for initialing to those interested, and journals are being routed accordingly. The Library feels that a number of persons were over-enthusiastic in their requests, and that some adjustments will have to be made.

Eleanor Dabney, cataloguer, resigned September 3 and no replacement for her has been found. Magdalen Wellborn joined the staff on August 19 as Library Assistant, a new position for the routing of periodicals.



Production Division

During the quarter the Production Division had visitors from each of these foreign cities: Damascus, Syria; Cairo, Egypt; Copenhagen, Denmark; Caracas, Venezuela; Batavia (Java); The Hague, Holland; LaPaz, Bolivia; Rome, Italy; Santiago, Chile; Honolulu, T.H.; Ponna, India; Nanking, China; Sao Paulo, Brazil; Manila, P.I.; Madrid, Spain; Pretoria, South Central Transvaal, Africa. Many of these visitors were interested in obtaining CDC productions and copies of the new "Film Catalog and Utilization Guide," which is nearing completion in the Text Writers Section.

PRODUCTION BRANCH

In the Still Photography Laboratory, dye transfer color processing equipment was installed. Production of color prints is to begin in the near future. A Strob light for use in hi-speed photography was received by the Still Laboratory.

During the quarter, the Photomicrographic Room was virtually completed. Although there still remain several mechanical devices to be installed, the Photomicrographic Unit now is functioning and is expected to increase its services, both in output and utility, as working procedures become more standardized.

In the Graphics Section, final storyboards were completed on the film strips, "The Liver," "The Lung," and "Use of Airplanes for Mosquito Control — General Principles."

UTILIZATION BRANCH

Film distribution for the quarter consisted of 469 motion pictures and 708 film strips, making a total of 1,177 — this despite the summer months during which most of the medical schools were closed.

The Production Division's new projection-conference room was completed. This room seats about 40 persons, is equipped with air-conditioning, sound-proofing, and glassed-in projection booth which provides for projection of both motion pictures and sound or silent film strips.

PRODUCTION FOR VENEREAL DISEASE DIVISION, U. S. PUBLIC HEALTH SERVICE

Production of the film strip, "Venereal Disease and Tuberculosis Survey in Georgia," produced in cooperation with the Georgia Department of Public Health, was completed and is ready for distribution to interested agencies.

Production work on the film strip, "The Diagnosis of Primary Syphilis," was completed. This sound film strip is nearly ready for distribution.

PRODUCTIONS RELEASED

Motion Pictures:

4-047.0	Hand Ditching in South Carolina
4-049.0	Epidemiology of Murine Typhus
4-082.0	Topical Fluorides (black and white)

Film Strips:

5-035.1	The Lung (Revised edition of 5-035.0)
5-052.0	Identification of Malaria Parasites in Thick Blood Film
5-119.0	The Sanitary Pit Privy
5-121.0	V.D.-T.B. Survey in Georgia

Exhibits:

6-006.0	Government Audio-Visual Exposition--For Audio-Visual Week

Manuals:

8-001.0	Year Book of CDC for Library and Reports Division
8-008.0	CDC Film Catalog

3¼x4-inch Lantern Slides:

10-013.0	Cancer Series D -- 116 Nursing Slides

PROJECTS RELEASED

Photographs:

1-009.0	Photographs, 8x10-inch, for Laboratory Division
1-011.0	Photographs and Slides for Entomology Division
1-012.0	Photographs Requested by Emory Field Station, Newton, Ga.
1-013.0	360 Prints of V.D. Activities
1-014.0	Photographs as Required of Surgeon General's Activities
1-015.0	Mycology Teaching Photographs, Laboratory Division

1-016.0 Photographs, 8x10-inch, of Malaria Morbidity and Mortality Charts and Map (for Deputy Medical Director in Charge, CDC)
1-017.0 Photographs Mycology Class Students (Passport Pictures and Class in Action)
1-018.0 700 Photograph Copies of Microfilariae and Blood Film Negatives for Parasitology Branch

Displays:
7-003.0 Malaria Mosquitoes and Fly Control Photographs for County Fairs (for State Director of Public Health, Arkansas)

Manuals and Bulletins:
8-009.0 Rat-Borne Disease Prevention and Control Manual Photographs for Training Division
8-011.0 Line Drawings of 16 Photographs for Laboratory Division
8-012.0 Photographs as Required by Editorial Branch for July-Aug.-Sept. CDC Bulletin
8-013.0 General Photography for Field Training Bulletin 1949

2x2-inch Slides:
9-015.0 Slides of Mites, Fleas, Lice, and Ticks for Training Division
9-020.0 Statistics for Dr. Cummings' Paris Speech
9-021.0 Prints of 2x2-inch Slides (V.D.) from Hot Springs, Ark.
9-022.0 Slides of Insect Diagrams Nos. 1 through 12 for Training Division
9-023.0 Home Accident Prevention Series for Use at Field Training Stations

3¼x4-inch Lantern Slides:
10-014.0 Statistics for Dr. Cummings' Paris Speech
10-015.0 Mycology Teaching Slides for Laboratory Division
10-016.0 Ragweed and Pollen Control for Engineering Division
10-017.0 Slides for Typhus Control Branch

Miscellaneous:
11-006.0 2¼x3¼-inch Glossy Prints of V.D. Activities
11-007.0 Remake and Re-Recording of 35 mm. Film and Sound into 16 mm.-V.D. Activities
11-008.0 25 Copies of Film strip 5-022.0 Hospital Commission Report

Technical Development Division

INVESTIGATIONAL WORK ON ADULT HOUSEFLIES

Tests on the Relative Resistance of Various Strains of Houseflies to DDT. In response to complaints received from different locations that the DDT applications were not giving satisfactory results this season, a combination field and laboratory investigation was made to determine the relative resistance of local strains of flies to DDT deposits. Insectary-reared houseflies were carried to the site of field complaints and tested with wall-cage observations against the local DDT applications. At the same time, captured adult flies of the local strain were tested in parallel observations. Housefly eggs were secured near the site of the complaint and returned to the laboratory for rearing. Some of the adults from these eggs were tested in the standard exposure chamber against DDT deposits on plywood panels prepared with a standard DDT-xylene emulsion spray, and also with a finished spray prepared from the local DDT concentrate. Other adults from the eggs were set up as an insectary colony, and adults of the subsequent generations were tested against DDT deposits from standard and field sources. In cases where the distance to the site of complaint was too great to transport insectary-reared adults, housefly eggs collected in the field were shipped in rearing medium to the laboratory for rearing and standard laboratory testing. A specially designed mailing kit was used for this purpose. The kit, prepared at the laboratory, held supplies for the preparation of standard larval rearing medium, instructions for its preparation, instructions for gathering the fly eggs, and the necessary mailing labels. The shipment of eggs by this method has been very successful, and the larvae, which usually hatch in transit, are handled in the standard rearing procedure and continue growth normally. Occasionally, however, parasitic

mites are introduced into the cultures in the field, and these shipments must be destroyed and replaced.

The results of the field tests are shown in table 1. In these tests the strains of flies taken on the site of the complaint in each case (strains A-1, A-2, and B-1) showed significantly lower mortalities when exposed to the local applications of DDT than did the adults of the insectary strain.

Town	Exposure Period (minutes)	Strain of Flies	DDT Deposits	Percent Mortality	
				Males	Females
A	20	A-1	Field	13	2
A	20	Insectary	Field	100	92
A	20	A-2	Field	33	9
A	20	Insectary	Field	100	99
B	20	B-1	Field	14	10
B	20	Insectary	Field	100	49

TABLE 1. Twenty-four-hour mortality (percent) of adult houseflies of local and insectary-reared strains after exposure periods of 20 minutes to DDT deposits of approximately 200 mg. DDT per square foot (field tests). Each value is the average of four replications.

The laboratory tests were made in view of the following objections to the field tests previously described: (1) The insectary-reared adult houseflies might have been weakened by transport to the field; (2) the insectary-reared strain might have lost natural vitality as a result of inbreeding of the insectary specimens; (3) the field flies collected for the tests might have been older than the optimum age of 3 to 4 days and therefore might not reflect true resistance of the strain; (4) the flies gathered at the site of the complaint might be quite localized and not represent true conditions over a city-wide area; and (5) the apparent resistance might have resulted from sublethal exposures of the flies previous to their collection in the field.

In the laboratory tests, therefore, all adult flies used in the experiments were 3 days old. This included not only the insectary-reared strain but also adults from eggs of field strains brought into the laboratory. A wild strain of the housefly was secured in Savannah at a locality known to be free from DDT deposits. Eggs were secured in towns A and B from at least three sources separated by distances of at least 1 mile to insure a more representative sample of the city-wide area. The adult flies in these tests were kept free from contact with DDT deposits until the test exposures were made. Some of the adult flies of each strain were withheld from the DDT exposures and used for colony purposes to determine if the resistance to DDT toxicity was maintained through the 2nd and 4th generations. The results of tests with the various strains are given in table 2.

TABLE 2. Twenty-four-hour mortalities (percent) of 3-day-old adult *M. domestica* after exposure periods of 20 minutes to deposits of 200 mg. DDT per square foot applied as 5 percent finished sprays from standard and field DDT concentrates.

The laboratory studies showed the wild strain of Savannah flies to be of about the same resistance to DDT as the insectary-reared strain. Strains from towns A and B, however, reared in the same conditions, continued to show a high degree of resistance to DDT even through the 4th generation of complete freedom from DDT.

The resistance of local strains of flies to DDT toxicity appears to be correlated with the age and number of the DDT applications. At the locality of the highly resistant strain (B-1) spray applications had been made for two seasons with the last application 1 month before the strain was isolated. At the locality of the very highly resistant strain (B-3) the DDT had been applied for two seasons and weekly over a period of 3 weeks previous to testing.

Further tests were made on flies from three other towns which had received DDT applications over varying lengths of time. Town C had received no DDT applications, and the flies, strain C, showed no more resistance to DDT than did the insectary-reared flies or the wild Savannah strain.

TABLE 2

Town	Strain of Flies	Insectary Generation	Source of Concentrate	Percent Mortality	
				Males	Females
A	A-1	0	Field	65	15
			Standard	35	0
		2	Field	26	4
			Standard	1	0
		4	Field	59	41
			Standard	91	12
	A-2	0	Field	75	0
			Standard	62	3
		2	Field	100	94
			Standard	100	53
		4	Field	99	89
			Standard	98	71
	A-3	0	Field	90	19
			Standard	78	4
		2	Field	82	39
			Standard	20	2
		4	Field	68	43
			Standard	77	20
Savannah	Wild	0	Field	95	61
			Standard	100	94
		2	Field	97	75
			Standard	96	52
Savannah	Insectary	0	Field	100	95
			Standard	100	97
		2	Field	100	94
			Standard	100	49
		4	Field	100	68
			Standard	98	18
B	B-1	0	Field	80	40
			Standard	73	39
		2	Field	12	9
			Standard	19	12
		4	Field	61	14
			Standard	74	21
	B-2	0	Field	99	79*
			Standard	96	82*
		2	Field	26	18
			Standard	18	10
		4	Field	75	8
			Standard	70	1
	B-3	0	Field	56	10
			Standard	50	10
		2	Field	7	10
			Standard	8	6
		4	Field	20	6
			Standard	16	5

*Adults probably weakened by overcrowding as larvae in the rearing medium.

TABLE 3

Twenty-four-hour mortalities (percent) of adult female *A. quadrimaculatus* mosquitoes after 50-minute exposure periods to deposits of 200 mg. DDT per sq. ft. Adults from 1st and 6th generations from eggs deposited by females not exposed to DDT, other generations from eggs deposited by exposed females.

Series No.	Generation					
	1	2	3	4	5	6
1		36	14	15	11	51
2	48	13	13	39	39	33
3	57	43	38	28	30	73
4	78	58	34	44	56	69
5	51	35	42	32	37	52
6	35	37	28	29	46	56
7	37	45	56	50	44	82
8	87	53	36	39	36	62
9	52	24	19	38	18	43
10	35	23	24	11	34	34
11	53	31	39	26	28	33
12	45	26	29	38	41	57
13	59	38	43	38	45	52
14	54	31	38	47	37	51
Mean	53	35	32	33	36	53

TABLE 4

Twenty-four-hour mortalities (percent) of adult female *A. quadrimaculatus* mosquitoes after 30-minute exposure periods to deposits of 200 mg. chlordan per sq. ft. Adults of 1st and 6th generations from eggs deposited by females not exposed to DDT residues, other generations from eggs deposited by exposed females.

Series No.	Generation					
	1	2	3	4	5	6
1	97	81	68	96	94	73
2	77	81	80	89	91	98
3	75	83	72	98	90	98
4	76	73	48	65	74	82
5	83	88	95	92	77	86
6	86	80	92	87	75	95
7	77	74	95	91	84	91
8	69	70	72	53	67	87
9	95	93	94	89	98	73
10	97	99	100	96	97	97
11	94	97	99	96	100	79
12	90	85	76	84	95	85
13	98	100	100	100	100	100
14	92	100	100	88	96	97
15	96	100	96	99	98	83
16	79	96	89	76	93	87
Mean	86	87	86	87	89	88

In town D, regular DDT applications had been made for fly control during 1947 but not during the present season, and strain D showed only a moderate amount of resistance to DDT. In town E, however, where DDT treatments are being applied during the present season, the strain E showed a high degree of resistance.

More extensive investigations of fly resistance are under way with other strains from approximately 20 towns not previously considered. The mortalities given cannot be interpreted in terms of actual field control as the exposure periods were short; but in the cases of high resistance, the duration of effective control given by DDT deposits should be materially shortened, since the effects of resistance should be more marked as the DDT residue deteriorates.

INVESTIGATIONAL WORK ON ADULT MOSQUITOES

Studies on Possible DDT Resistance in Mosquitoes. A study on the possible acquisition of resistance to the insecticidal effects of DDT in mosquitoes has been concluded. In brief, males and females, segregated previous to mating, were exposed to DDT residual deposits for periods sufficient to produce at least 50-percent mortality in each sex. The surviving members were recombined in a colony and allowed to reproduce. The offspring of these treated adults were handled in a similar manner and the process was carried through four generations. The adults of the 5th generation were not exposed to DDT; and their offspring, the 6th generation, were tested to determine their resistance to DDT. Comparative tests using 50-minute exposures of adult females of each generation against the same set of panels containing 200 mg. DDT per square foot gave the results shown in table 3.

A statistical test of significance (t-test) of the difference between the average mortality of the first generation and that of each subsequent generation was made following an angular transformation. The differences exceeded the 1-percent level of significance between the 1st generation and the mean of the 2nd to 5th generations. However, there was no significant difference between the mean mortalities of the 1st and 6th generations. These results substantiated those previously obtained from the 30-minute exposure-period studies using DDT deposits. The reversion in resistance to DDT toxicity of the adults of the 6th generation was complete the first generation that selective exposure of the adults was not pursued.

An investigation was then made to determine if this selective resistance was extended to insecticides other than DDT. For this purpose, test sets of panels were prepared with deposits of 200 mg. chlordan per square foot. Females of each generation were tested in standard exposure chambers against the same set of panels, but different panels were used in different series. The results of 16 series of 30-minute exposures, conducted over a 2-week period, are given in table 4.

Statistical tests of significance as described above were made. The differences between the average mortality of the 1st generation and the mean of the 2nd to 5th generations were not statistically significant.

Similar studies were made with 200 mg. deposits of benzene hexachloride (containing 10 to 12 percent gamma isomer) and a new chlorinated insecticide Compound 118*/. In each case, 5-minute exposure periods were used, and 12 series of comparative tests were made. With these two insecticides, there was no significant difference between the average mortality of the 1st generation and the mean of the 2nd to 5th generations. The short exposure periods used were necessary in order to obtain moderate mortalities.

Since chlordan, benzene hexachloride, and presumably Compound 118 differ markedly in chemical structure from DDT, it was decided to determine whether the resistance to DDT exhibited by the strain of mosquitoes was

*Product of Julius Hyman & Co., Denver, Colo.

strictly specific for the one compound. Since the chemical structure of DDD closely approximates that of DDT, 12 series of comparative tests were made using 50-minute exposures to deposits of 200 mg. DDD per square foot. Statistical tests showed no significant difference between the average kill of the 1st generation and the mean of the 2nd to 5th generations.

The methoxy analogue of DDT represents another type of structural modification, and 12 series of comparative tests were made using 50-minute exposure periods to deposits of 200 mg. methoxy-DDT per square foot.

Statistical analysis showed the difference between the average mortality of the 1st generation and the mean of the 2nd to 5th generations exceeded the 1-percent level of significance. There was no significant difference between the mean mortalities of the 1st and 6th generations, however.

These results indicate that increase in resistance produced by selective killing of adult mosquitoes may be produced by DDT deposits. This resistance, however, did not extend to insecticides of different chemical structure, namely chlordan, benzene hexachloride, and Compound 118, nor to a structural modification of DDT in the ethane chain, namely DDD. An increased resistance similar to DDT resistance was also shown as a structural modification of DDT in the phenyl sidechain, namely the methoxy derivative of DDT.

Training Division

Field Training

STATIONS IN OPERATION

Cincinnati, Ohio. Plans for the expansion of the facilities and staff of the Water and Sanitation Investigations Station were begun during the quarter as a result of the passing of the National Stream Pollution Legislation and the signing of the Ohio River Valley Sanitation Compact.

Ernest P. Dubuque, Engineer, assumed active charge of the Training Section on July 29, and Donald J. Schliessmann, Sanitary Engineer (R), left September 17, 1948, to attend the Harvard Graduate School of Engineering.

Eight training courses for engineers, bacteriologists, and chemists will be given during the year 1949 provided that adequate space and properly qualified personnel are obtained.

Columbus, Ga. A 12-week training course for sanitary engineers was completed September 11, 1948, at this station. Ten engineers from foreign countries and four from the United States completed the course.

On September 20, 1948, a 12-week course in environmental sanitation was started with 27 trainees enrolled from local and State health departments of South Carolina, North Carolina, Maryland, Arkansas, and Georgia.

Savannah, Ga. A 12-week practical field-training course in public health education was completed September 10, 1948. Three graduates in health education from Yale University, Columbia University, and the University of Michigan attended the course.

Expansion of the field-training activities in health education at this station is planned. Services of the training officer have been made available to nearby States on a consultative basis, in addition to the consultative services available to the other field-training stations. The training officer participated in the health-education activities of the local and State health departments and Public Health Service District Office.

The record-analyst training officer at this station, who is available to the States on a consultative basis, began

temporary duty July 12 with the South Carolina State Board of Health for the purpose of making a survey of needs in the field of records and reports. A schedule for training local health department clerks of South Carolina was developed, and a records and reports manual for local clerks of South Carolina health departments was begun. Report forms for sanitarians in South Carolina were developed and a manual of health-educator records was revised and reissued.

Topeka, Kans. A special 2-week milk-sanitation course was held from July 26 to August 6, 1948. Twenty-five men from seven States completed this training. In addition, 12 men from Kansas State and local health departments and commercial concerns attended this course part-time.

A 12-week course for sanitarians began August 30, 1948. Seven sanitarians from four States attended this practical field-training program.

A course in records training was given from August 30 to September 9, 1948. This new undertaking was well received. There were four trainees in attendance from Kansas State and local health departments.

In the training programs given during the quarter, there were 58 guest lecturers and participants from the State and local health departments, U. S. Public Health Service Activities, other governmental agencies, and commercial establishments.

Through the auspices of the Kansas State Board of Health, five counties were surveyed relative to general environmental sanitation. The State health departments of Minnesota, Missouri, Iowa, Nebraska, North Dakota, and South Dakota were visited by members of the training staff to determine training needs.

Troy, N. Y. The second 12-week field-training course for sanitary inspectors given at the New York State-Rensselaer County Public Health Training Center was completed July 24, 1948. Certificates were issued to five sanitarians from New York. In addition, four men from New York City attended the first 8 weeks of the course, and one man from Pennsylvania attended the 4-week course on milk and restaurant sanitation.

The third course for sanitary inspectors began on September 13, 1948, and will extend through December 4, 1948. Twelve men from New York State and local health departments enrolled for this course.

A 2-week decentralized course on food and restaurant sanitation was presented at Pittsburg, Pa., August 16 — 29, 1948, by members of the training station. Eleven restaurant inspectors of the City of Pittsburg Health Department attended this course. In addition, nine inspectors were present at lectures pertaining to their particular work.

STATE FIELD TRAINING-COOPERATIVE ENTERPRISES

A 5-day insect- and rodent-control course was conducted at New Orleans, La., July 12 — 16, 1948, for eight sanitarians of the Louisiana State Health Department. This course was handled by two members of the staff of the Insect and Rodent Control Branch with the cooperation of District No. 4 and the Louisiana State Health Department.

Headquarters Training

IN-SERVICE TRAINING:

Special orientation and insect- and rodent-control courses were arranged by the Insect and Rodent Control Branch for 14 CDC employees and local and State health department personnel. These courses were scheduled for 1 to 10 days' duration. In an exceptional instance, however, a 5-week training program was arranged for one person.

TRAINING PUBLIC HEALTH PERSONNEL FROM FOREIGN COUNTRIES:

Specially arranged training courses varying from 3 days to 3 weeks in duration were conducted by the Insect and Rodent Control Branch for 29 public health workers from 13 foreign countries. Courses in malaria

control, rodent control, fly control, and general orientation of CDC activities were presented.

Other Headquarters Activities

SPECIAL ASSIGNMENTS:

R. J. Hammerstrom, S. A. Sanitary Engineer, was assigned to Treasure Island, San Francisco, Calif., for the 6-week radiological-safety course offered by the Navy. At the completion of the course, he visited the California field-training station staff at Santa Barbara and conferred with Dr. George Palmer, director of Recruitment and Training for the California State Department of Health. He also discussed field training with the State Health Department and university officials in Seattle, Wash. Preliminary plans were laid to cooperate with the Washington State Health Department at a later date.

L. C. MacMurray, Special Consultant, formerly with Johns Hopkins University at Baltimore, joined the Training Division staff. He was assigned to work in cooperation with Mr. McClellan in the Production Division on audio-visual training aids in the field of environmental sanitation. During the quarter, motion pictures and filmstrips dealing with the construction of a sanitary privy and with chlorinator operation were completed.

EXPANSION OF SERVICES:

Health Officer Training — An agreement was reached with the New York State Department of Health on health officer activities. Plans for the training of health officers will be developed, as a cooperative effort with the State Health Department, to serve the northeastern section of the United States.

After a period of orientation in the Training Division, Dr. Elmer Hill, recently transferred from the Epidemiology Division, will be assigned to New York State with headquarters at Albany in the Office of Professional Training, to inaugurate health officer training.

Special Services Branch — J. E. Borches, formerly CDC representative in PHS District No. 2 at Richmond, joined the Training Division. He was placed in charge of the Special Services Branch. Here, special programs for foreign visitors and trainees are developed, and evaluation of current training activities is made.

Housing Branch — During the quarter, Emil A. Tiboni, S. A. Sanitarian (R), reported for duty with this Branch and was assigned to work with Ross Buck, S. A. Engineer, in charge of housing training. Mr. Tiboni, who for several years has been with the APHA Committee on the Hygiene of Housing, will aid with the development of housing training to serve all sections of the country.

Veterinary Division

HEADQUARTERS ACTIVITIES

During July and August an extensive tour of the country-wide projects of the Division was made by Dr. Justin M. Andrews, Deputy Officer in Charge, CDC, and Dr. James H. Steele, Division Chief.

Personnel of the Division figured prominently in the proceedings of the annual meeting of the American Veterinary Medical Association (A.V.M.A.). Dr. Martin Baum was chairman of the Section on Sanitary Science and Food Hygiene. Doctors Herbert Stoenner and Joseph Ruhe were coauthors of papers on Q fever and histoplasmosis, respectively. Other Division representatives actively participated in the panel discussion, moderated by Dr. Steele. At this session the A.V.M.A. governing council elected to change the name of the section from "Sanitary Science and Food Hygiene"

to "Section on Public Health." This change in name was warmly welcomed, since it now allows broader scope of application and embraces the entire field of animal diseases communicable to man, and of human diseases transmitted by animals and animal products.

A proposal to institute a grading system for drawn and uninspected poultry was brought by certain parts of the poultry industry of the country for consideration before the U. S. Department of Agriculture. This type of grading would falsely imply to the consumer that the product has been inspected for wholesomeness and freedom from disease, and such products would be sold in competition with legally veterinary-inspected carcasses. All State health departments were circularized by memoranda through the district offices, and made aware of the danger to the health of the public if such a proposal were adopted. As a result, the Department of Agriculture received many letters of protest from health officials throughout the country.

Dr. E. R. Price was transferred from District No. 2 Office, Richmond, Va., to the office of the CDC Encephalitis Investigations, Missouri Basin Studies, at Kansas City, Mo. Dr. Price will be in charge of the veterinary aspects of the investigations and control studies in the neurotropic arthropod-borne encephalitides.

RABIES CONTROL

Baton Rouge Program. Dr. E. S. Tierkel, of the Rabies Control Branch, made a trip to Baton Rouge, La., to assist in developing plans for a long-range rabies-control program for the city of Baton Rouge and the parish of East Baton Rouge. The plans called for a tri-group authority for the operation of the program, consisting of (1) the City-Parish Health Unit, (2) the local private practicing veterinarians, and (3) the Baton Rouge Society for the Prevention of Cruelty to Animals. Details of the program include provisions for the holding of annual parish-wide vaccination clinics, improvement of stray-dog control-facilities, registration and vaccination of pet dogs as a single operation, embarkation of an all-out educational campaign with the use of every available medium.

Technique for Virus Passage. A new technique for intracerebral passage of viruses in laboratory animals (Schabel and Gordon, Science, 106:549) has been applied to use with rabies in mice. In this procedure, intracerebral passage from the brains of the donor mouse, dead of rabies, to a living susceptible animal is accomplished by insertion of the needle subdurally from one to the other. This procedure eliminates the necessity of cephalic necropsy, brain removal, and emulsification with a suitable diluent. Intracerebral transfer by needle is always made from the lobe of the brain opposite the lobe in which the virus has been injected. Seven serial passages of rabies-street virus, fox origin, have resulted in 100-percent mortality in each succeeding group of mice with the consistent production of Negri bodies.

Effect of Penicillin on Rabies Virus. In experiments to study the effect of penicillin on rabies virus in high dilutions, parallel tests on treated (500 units/ml.) and untreated suspensions of street virus were run. Tenfold dilutions were used from 10^{-2} through 10^{-8} and were titred intracerebrally in mice. Brains of all mice dying on test were Negri positive. The differences in the titres of the untreated and treated suspensions were negligible, varying by LD50 of only $10^{-0.1}$. It was concluded that penicillin added in this amount to bacterially contaminated brain specimens, sent in to public health laboratories for diagnosis, have no lowering effect on the infectivity titre of rabies-street virus.

Pseudorabies in Dogs. It has long been suspected that pseudorabies (Aujesky's disease), a disease most often recognized in cattle, is present in dogs in certain parts of the country. It may be confused clinically with rabies. In a preliminary study to test the susceptibility of dogs

to this virus, four dogs were exposed by the intracerebral, intramuscular, subcutaneous, and intranasal routes, respectively. The animals exposed intracerebrally, intramuscularly, and subcutaneously were infected, and died following clinical symptoms characterized by fever, cortical seizures, pruritus, motor agitation, paralysis, and prostration. Pre- and post-inoculation sera showed a rise in serum-neutralizing antibodies. Gross and histopathological lesions were studied.

STATES SERVICES

Arizona. Beef-tapeworm studies have shown that fewer cyst-infected carcasses are being found in the packing houses. This is attributed to the fact that cattle are kept in the feed lots only a month instead of the usual 6 months prior to slaughter, allowing less chance for ingesting eggs and insufficient time for full incubation.

A human case of Q fever was traced to infected ticks from the patient's dog. *Coxiella burneti* was isolated from *Rhipicephalus sanguineus*. This is thought to be the first isolation from this tick incriminated in natural infection.

Colorado. The "State approval" system of local meat-inspection services is expanding throughout Colorado. Approval surveys are being requested by local health jurisdictions in a novel, workable, and sound meat-inspection program.

Dr. Martin Baum has been meeting with industrial and professional groups in helping to formulate a brucellosis-control program in his capacity as chairman of the Governor's committee on brucellosis-educational policies.

Preliminary surveys on equine encephalomyelitis were conducted in Colorado, Wyoming, and Montana in cooperation with the Midwestern Missouri River CDC Services Office encephalitis studies.

Michigan. Salmonellosis studies continued with clinical data from 50 cases during the quarter. In one outbreak involving 25 persons, preliminary epidemiological data indicate that dried-egg powder was the source of the trouble.

Rabies control in Michigan is being expanded. Three counties successfully conducted compulsory vaccination programs and have decided to continue this policy. A comprehensive review of rabies in Michigan for the past 10 years is now being completed. It is expected that this will herald a drive for State-wide coordination of control activities.

FIELD INVESTIGATIONS

Histoplasmosis. In Kansas, cattle-skin testing-surveys are drawing to a close, and ground work is being laid for investigations of dogs as a possible reservoir of infection. Preliminary studies will include determination of canine susceptibility to *Histoplasma capsulatum* infection; clinical manifestations, if any; evaluation, standardization, and techniques of histoplasmin skin-testing in dogs.

Q Fever. Q fever studies of infected-cattle herds and humans in the endemic area of southern California were begun at the Q Fever Laboratory, Hondo, Calif., as a cooperative project with CDC, the National Institutes of Health, and the California Health Department participating. The studies are being directed toward epizoology, pathology, treatment, control, and suppression measures.

At the Rocky Mountain Laboratory, Hamilton, Mont., Dr. Herbert Stoenner continued his experimental work with the disease in cattle. This involves infecting cows experimentally, studying the clinical and pathological picture, and sacrificing test animals at varying periods after inoculation; testing blood, milk, and tissues for the presence of the Q fever organism. Acute cases of mastitis were found and, except in one case, the milk from infected quarters remained infectious at sacrifice. Milk from two cows has remained infectious 208 and 223 days after exposure. One cow, sacrificed on the 5th day after inoculation, showed positive isolation of *C. burneti* from almost all of its body organs, and from blood and milk.

Toxicity studies have been carried out with duomycin, a drug which may be of value in treating Q fever and other rickettsial diseases. Preliminary studies show that intramammary infusion of 100 mg. in 50 ml. of sterile-distilled water in each quarter for five daily injections does not markedly affect milk production. Other routes of inoculation are being studied. Later reports do not indicate that the drug will be of value in control of the disease.

Alaskan Project. During the early part of the quarter, Dr. James H. Steele, accompanied by Dr. Paul J. Brandly, made a study of the animal population of the Territory of Alaska as part of a preliminary survey of veterinary public-health problems. This project is part of the Alaska Health and Sanitation Project, with headquarters at Anchorage.

It was found that a great deal of investigational work must be done to determine the role of animal diseases communicable to man under arctic conditions, as well as studies to determine animal reservoirs of human diseases in that region.

An immediate survey will be made of neurotropic diseases of animals that are transmissible to man. Headquarters for the survey will be at Ladd Air Force Base, Fairbanks. Studies in this project will determine the extent of these diseases under arctic conditions, and their clinical symptoms, pathological changes, immunological responses, and the effectiveness of control and eradication procedures.

Since human tuberculosis is one of the greatest problems in Alaska, the second project will be a study of the pulmonary diseases of dogs and related animals to determine their role in the spread of human tuberculosis, possibly as active or passive carriers. Extensive laboratory experiments will be made to find out why tuberculosis in Alaska behaves differently (e.g., large numbers of extra-pulmonary lesions) from the way the disease behaves in the United States. These studies will also include other pulmonary diseases such as Q fever, histoplasmosis, and viral and fungous pneumones.

The third phase of investigations will embrace the diseases of animals which cause enteric diseases in man. The bulk of this work will revolve around *Salmonella* infections, of which there are more than 150 types common to man and lower animals. As a part of the above projects, studies in other diseases may be done as time permits.

Food-borne infections also will receive attention. Surveys of existing problems caused by botulinus toxin, *Staphylococcus, Streptococcus,* and *Salmonellae* will be investigated. Known to be of importance are botulinus and a clam toxin in the coastal areas.